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RAJINDRA KUMAR PANDIT & RAVINDER NATH MUNSHI

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Programme	Date	Time
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M.Tech. Cold Region Science & Engg.	05.06.1999 (Sunday)	03.00 p.m. to 6.00 p.m.
M.B.A. (Agri-Business)	05.06.1999 (Sunday)	03.00 p.m. to 5.00 p.m.
Undergraduate Programmes	23.05.1999 (Sunday)	10.00 a.m. to 1.00 p.m.

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2. Master's Programme Only : Agriculture Majors : Agrometeorology, Animal Breeding, Animal Nutrition, Dairy Husbandry, Poultry Husbandry. **Basic Science Majors :** Agriculture Statistics, Botany, Computer Science. **Engineering Majors :** Agricultural Engg. (Farm Machinery & Power, Food Biotech, Irrigation & Drainage, Process & Food, Soil & Water Conservation), Design & Production, Electrical Energy System, Soil Mechanics & Foundation, Thermal Science, Cold Region Science & Engg. **Home Science Majors :** Clothing & Textile, Family Resource Management, Food & Nutrition, Human Development & Family Studies. **Fisheries Science Majors :** Aquaculture & Fishery Biology. **Veterinary Science Majors :** Vety. Public Health, Vety and Animal Husbandry Extension, Livestock Products Technology, Livestock Production & Management, Poultry Science and Epidemiology & Preventive Medicine. **Management Majors :** M.B.A. (Agri-Business).

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4. Undergraduate Programmes : B.V.Sc. & A.H., B.Sc. Ag., B.F.Sc., B.Sc. (Forestry) & B.Sc. Home Science.

5. Eligibility : Master's Programmes : Bachelor's degree in the relevant area with at least 55% marks or equivalent. For M.V.Sc Programmes 1st Division at B.V.Sc. level. **M.Tech. Cold Region Science & Engg. :** M.Sc. Physics/Maths or B.E./B.Tech (Mech./Civil/Electrical/Electronics & Communication/Computer/Production Engg.) with 1st Division at Master's or Bachelor's level as the case may be with at least IInd Division in lower level Examinations. Separate application forms with requisite fee for seeking admission to this major is needed. **M.B.A. (Agri. Business) :** Bachelor's or Master's degree in Agriculture, Agricultural Engineering, Dairy Science/Technology, Food Science/Technology, Fisheries, Forestry, Home Science, Horticulture or Veterinary Science with at least 60% marks (55% for SC/ST). **Ph.D. Programmes :** Master's Degree in the relevant area with First Division or equivalent-O.G.P.A. with atleast 55% marks or equivalent O.G.P.A. in Bachelor's degree. **Undergraduate Programmes :** Pass in Intermediate Science/Agriculture or equivalent examination. For B.Sc. Home Science Programme candidates of Intermediate with Home Science are also eligible.

Note : Candidates appearing in the qualifying examination can also apply for the above Programmes.

Detailed Prospectus and application form can be obtained by sending a bank draft for Rs. 50.00 for Undergraduate and Rs. 100.00 for Master's and Ph.D. Programmes in favour of "P.E.E.C.R.F. Account, G.B. PANT UNIVERSITY OF AGRICULTURE & TECHNOLOGY, PANTNAGAR" payable at State Bank of India, Pantnagar (Branch Code 1133) or Uco Bank, Pantnagar (Branch Code 678) with a self addressed envelope of 30 x 25 cm size bearing postage stamps of Rs. 22.00 or personally through Cash Payment from Admission Cell during working hours. Cheques/Money Orders/Postal Orders will not be accepted. Application form will be available from 20.2.1999.

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Institutional Culture Management

Rajindra Kumar Pandit*
Ravinder Nath Munshi**

Preamble

In every Institute there are patterns of beliefs, symbols, rituals, myths, and practices that have evolved over time. These, in turn, create common understanding among members as to what the Institute is and how its members should behave.

Culture implies the existence of certain dimensions or characteristics that are closely associated and interdependent. While the whole of institutional culture may be somewhat different from the summation of its parts but the commonly shared values, visions, goals, objectives and feelings are collectively known as 'Institutional Culture' and the management of it will require scientifically devised tools and procedures.

Educational institution is a service organization and the faculty is an important component for evolving, sustaining and carrying a set cultural values. It must be strongly emphasised and understood that faculty is primarily to help and guide a student and not to sit in a seat of judgment to crucify him. The teacher is not merely a communicator or transmitter of knowledge or information. He is a facilitator of teaching and value creation. He is a trustee of quality and a key resource in any educational system. The role of faculty is not limited to merely imparting knowledge, transferring information or developing certain skills among the students but mainly to awakening their inner self and converting them into vibrant, innovative, creative and dynamic personalities. Like productive organizations culture has an equal importance in the institutes too, in order to maintain its quality environment.

When a student enters the college, he interacts with the college environment. He forms certain opinion about his seniors, teachers, management and overall environment of the institute. It is the basic responsibility of the institute to enlighten fresh entrants about its culture and ethos. Institutional environment has a long lasting impact on the personality development of student. The institute provides an environment of participative learning both curricular and extracurricular. Hence it must evolve certain defined patterns of relationships formal as well as spontaneous and informal. In any college, its management, administration, faculty, non teaching staff and students have to attach certain meaning and importance to its various relationships and characteristics. The decision has to be taken about retention and rejection of certain basic values and the manner in which the goals are to be achieved. If the manner is proper and acceptable, the members will internalize and absorb the institutional values with corresponding changes in behavioural patterns.

Institutional culture represents a common perception held by its members. It is expected that individuals with different backgrounds or at different levels in the institute will tend to describe the culture in

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similar terms. Culture has common properties does not mean, however, that there cannot be subcultures within any given culture. Most large institutions have a dominant culture and numerous sets of subcultures.

Culture has a strong impact on the system effectiveness. To study how culture affects effectiveness, it is required to first differentiate strong cultures from weak ones. A strong culture is characterized by the core values being intensely held, clearly ordered, and widely shared. The more the members accept the core values, agree to their order of importance, and are highly committed to them, the stronger the culture is. Institutions that are young or have constant turnover among their members, almost by definition, will have a weak culture because members will not have shared enough experiences to create common meanings. This shouldn't interpret to imply that all mature institutions with a stable membership will have strong cultures. The core values must also be intensely held.

If the culture is strong, it will influence the effectiveness, by conveying to members what behaviours they should engage in and by increasing their sense of identification with the institute. A strong organizational culture increases behavioural consistency. A strong culture is a powerful means of implicit control and can act as a substitute for formalization. It seems entirely appropriate to view formalization and culture as two different roads to a common destination. The stronger the organizational culture, the less the management need to be concerned with developing formal rules and regulations to guide individual behaviour.

Culture Management

Clearly, an institutional culture has a marked influence on its members. But should culture be treated as given. Managing culture need not be the same as changing culture. In a time of transition, for instance, managing an organization's culture may entail sustaining the present culture rather than inducing any change. So, in a very strict sense, managing a culture could entail stabilizing the *status quo* as well as inducing a shift to another state.

An institutional culture may have been appropriate for a certain time and set of conditions. But time and conditions change. Global competition, changes in government regulations, rapid economic shifts, and new technologies are examples of forces that may well leave an institute with a culture that hinders its effectiveness. In such cases, management need to alter those factors that created and sustain the current culture.

The fact that organizational culture is made up of relatively stable characteristics would imply that they are very difficult for management to change. Cultures take a long time to form. Once established, they tend to become entrenched and resistant to change efforts. Strong cultures are particularly resistant to change because employees become so committed to them.

For employees to unlearn years of experiences and memories is a difficult task. That too takes a very long time. So while culture may be theoretically amenable to change, the time frame necessary to unlearn a given set of values and replace them with a new set may be so long as to make the effort realistically impractical. There are a number of forces in an institute that work to maintain its present culture. These would include written statements about the mission and philosophy, the design of physical spaces and buildings, the dominant leadership pattern, past selection practices, entrenched rituals, popular stories about key people and events, the historic performance-evaluation and reward criteria, and the formal structure. To illustrate, past selection practices tend to work against cultural change. Employees chose the organization because they perceived their values to be a good fit with the organization. They are comfortable with that fit and will strongly resist efforts that might undermine the predictability and security of the *status quo*.

A final point in the argument against management's ability to change culture is the reality that if culture could be changed, surely management would do so. The parameters of a change in culture could be the selection process, top management's actions, and the methods chosen for socializing employees that sustain a culture. Similarly, stories, rituals, material, symbols, and language are means by which employees learn who and what is important. By changing these factors it should be possible to change the culture. Top management might, for example, fire or demote employees who are rigidly locked into the current culture and replace them with individuals who accept and promote the values that are sought, or they might institute a new set of rituals that will reinforce a different cultural milieu.

Conclusion

Effective and efficient institutes have strong cultures with a common set of shared values amongst faculty, staff and students. But an equally important aspect is matching of the actual content of the culture and the degree to which it fits to the conditions

(Contd. on page 11)

Teachers' Continuing Education

Shifting Focus on Distance Mode

G.L. Arora*
Saroj Pandey**

The increasing emphasis on quality control and management assurance in every sphere of human activity has been the hallmark of the last two decades of the twentieth century. In education, efforts, which until now were focused on quantitative expansion of education, have now been shifted towards ensuring quality improvement. In this context, it is widely recognised, that, teacher performance is the single most crucial input to improve the quality of education. Recognising the need for both pre-service and continuing education of teachers for improving performance, the National Policy on Education (1986) observed that pre-service and in-service components of teacher education were inseparable.

Social changes and advancement of technology during last few years have also led to widening of teachers' role which was earlier confined to classroom instruction alone. The advances in technology have resulted in the development of several audio-visual equipment, the use of which in the classroom shall necessitate different kinds of skills on the part of teachers. Besides, there is a shift in educational objectives, which emphasises development of reflective thinking skills among students rather than transmitting information and facts to them. The teacher, therefore, shall have to be equipped with relevant knowledge and skills to make pupils reflective thinkers.

However, pre-service teacher education programmes presently available in the country are hardly adequate to turn a trainee into a professional. At the most, they can be considered as initiation into the profession to be strengthened by the teachers' in-service education organised on a continuing basis. Teachers, therefore, need recurrent training in the area of content knowledge and fine tuning of pedagogical skills as well as general awareness of the developments taking place in the field of education.

Infrastructural Facilities for INSET

During the past few decades, an impressive network for pre-service and in-service training of teachers

has developed in the country. Under centrally sponsored scheme of restructuring and reorganisation of teacher education, more than 430 District Institutes of Education and Training (DIETs), 74 Colleges of Teacher Education (CTEs) and 34 Institutes of Advanced Studies in Education (IASE) have been sanctioned to states/UTs. This training network which has evolved during the seventh and eighth Five Year Plans, is meant for providing in-service education to teachers at various levels of education.

Training Target : A Challenge

At present, the number of school teachers in the country is around five million. These teachers require training on a recurrent basis i.e. at least once in five years as envisaged by the NPE (1986). However, an analysis of the existing situation shall reflect the futility of such claims. For example, a DIET is expected to provide in-service training to 600 teachers in a year. According to an estimate when all the 520 districts will have DIETs with fully equipped and functional in-service education units, the DIETs shall have the capacity to provide training to about 0.3 million teachers every year where as approximately 0.6 million teachers need training every year. Likewise, SCERTs, CTEs and IASEs together can provide training to approximately one lakh secondary teachers every year while the total number of teachers is around five millions.

Foregoing discussion reflects the seriousness of the situation concerning the inadequacy of the network to meet the INSET needs of teachers at various levels of school education. Therefore, the stipulation of recurrent in-service training to every teacher every year or even once in 3-4 years will remain a distant dream. The number of teachers trained under centrally sponsored scheme or in the regular programme of SCERTs and DIETs may look impressive but it is grossly inadequate as it represents only a small fraction of the total teachers' population. It is estimated that with the current mode of centre based training, a teacher may get an opportunity to participate in some INSET programme once in five to ten years, whereas ideally speaking, every teacher should be exposed to some sort of professional development activity every year. The problem, indeed becomes all

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the more severe when we take into consideration substantial number of untrained and under qualified teachers despite various programmes and schemes of teacher education initiated in pursuance of NPE 1986.

The country, therefore, is facing a challenge to identify INSET technology having potential to meet the challenge of numbers. The existing routine INSET programmes of various institutions cannot meet the training requirement of entire teacher population. Evidently, there is a need of a mass training programme and mass training technology to cover such a large target group. Realising this need a centrally sponsored programme of Mass Orientation of School Teachers (PMOST) was launched in all states and Union Territories for the first time during 1986-90. The programme which aimed at generating awareness among teachers on thrust areas of National Policy on Education (NPE 1986) and innovative methods of teaching, covered 1.8 million teachers from the entire length and breadth of the country. Another centrally sponsored scheme, namely Special Orientation of Primary Teachers (SOPT) is in operation since 1993-94. About ten lakh teachers have been provided training under this scheme upto March 1998.

The Quality Concern

Besides the challenge of numbers, the quality of INSET at different levels of training, has always been a matter of concern, because, quality of the classroom and school environment, the learning experiences and materials provided, depends to a large extent on the quality of teachers. Majority of INSET programmes at elementary and secondary levels are either centrally sponsored developed and organised by institutions such as NCERT, NIEPA, IGNOU or state initiated programmes organised by SCERTs, DIETs, CTEs or by NGOs.

In all the centrally sponsored INSET schemes such as the Programme of Mass Orientation of Teachers (PMOST 1986-90) and Special Orientation Programme for Primary Teachers (SOPT 1993) and even in the programmes designed and executed at the state level, the training strategy has been mostly the cascade model of training in which training follows top-down approach and filters from higher level of hierarchy to the lower level. The quality, therefore, gets diluted to a considerable extent by the time it reaches the actual practitioner at the grassroots level.

Effectiveness and quality of resource persons in cascade model also varies from state to state and centre to centre, thereby, adversely affecting the quality of training inputs provided to teachers. It may also

be noted, that, most of the training programmes have been conceived as one shot approach, instead of meeting the training needs of the teachers on a recurrent basis. Though there have been some attempts to orient teachers of various levels through distance mode using the radio and T.V., these have been isolated and sporadic attempts, which have not led to the development of a sustainable system of teacher training through distance mode.

Another indicator of quality of training is its relevance to the needs of teachers. Teachers' training needs are broadly in the area of content upgradation, fine-tuning of teaching skills and general awareness. However, in the existing set up hardly any systematic effort is made to organise need based training programmes. A study conducted by Arora and Singh (1996) revealed, that even in DPEP states which operate on the principle of contextuality of learning, training needs of teachers were not identified before conduct of training. As a result, the training content may not meet the training needs of teachers.

Transactional Modalities

The transactional approach adopted in majority of INSET Programmes has so far remained confined to lectures with little scope and opportunity for trainees to actively participate in the training process. The one way flow of information impedes the instructional efficiency and effectiveness. Ironically concepts like activity based teaching, joyful learning, different management techniques for large size classes and multi-grade situations, team teaching, cooperative and collaborative learning etc. which require demonstration and participatory approach of training are also often taught through lecture method which leaves the trainees more puzzled and confused about how to go about in these situations with the result it has either very little or no impact on classroom process. Therefore, the traditional transactional modalities need to be replaced with more interactive and participatory transactional modalities.

Advancement in Communication Network and Communication Technology

We are currently in the "third-wave era" (Toffler 1981) — the post-industrial information age in which changes continuously take place at all levels of society. The plethora of technology and media has opened up new possibilities for educators. With the use of various technologies it has now become possible to facilitate two way interaction between the learners and teachers separated from each other due to geographical distance.

Modern information and communication technologies, especially with the merging of the telecommunication and computers, are revolutionising the quality, complexity, and speed of information being produced, stored, processed and transmitted. Interactive techniques, which are being commonly used by various developed, and developing countries for distance education programmes at various levels include :

- Two way video and audio (video conferencing)
- One way video, two way audio (Interactive televised instruction)
- Two way audio and graphics (audio-graphic teleconferencing)
- Two way audio (telephone and radio talk-back)
- One way audio (radio broadcasting)
- One way video (television)

It is obvious from the above description, that, with the help of these communication networks it has become possible for the experts to reach learners in every nook and corner of the country. These can be utilised for the purposes of INSET also, with same efficiency and effectiveness. Keeping in view the large training targets, India, therefore, is left with no other option than to explore the possibilities of utilising distance education technologies for in-service training of teachers.

INSET through Distance Mode : International Scenario

Distance education is a comparatively new concept, which has emerged as an outgrowth of education by correspondence and as a consequence of the development of electronic communications. Distance education, as an alternative way of gaining access to knowledge, has been given increasing attention over the past two decades. More recently Delors (1996) emphasised the use of distance education techniques for the in-service education of teachers, which may help in "saving money and allowing teachers to go on working, at least part time, and it can be an effective instrument for implementing reform or introducing new technologies or method". (Delors p. 147). A significant number of distance education systems have been established in, both, developing and developed countries and are operating with varying degrees of success, given the widely different constraints and contexts, within which they operate.

More than 40 developing countries have been using distance mode to provide training to teachers at different levels with a reasonable quality and cost effectiveness.

This mode is becoming increasingly popular for training of teachers in Indonesia, Brazil, Pakistan, Nepal and China etc. In Latin America two thirds of all post secondary distance education institutes provide teacher training through distance mode. In Africa, teacher training through distance mode in Tanzania is not only more effective than an equivalent conventional residential programme, but is also four times cheaper (per graduate). Similarly, in Brazil a distance teacher training programme has been found to be six times more cost-effective than traditional face to face training.

Egypt, in earlier 1990s, utilised distance mode communication technology supplemented by self-learning materials and weekly discussion meetings with faculty members at centres near the participants' work place and residence. The project was undertaken in response to the need for educational reform strategies and for upgrading the professional and academic level of 140,000 elementary stage teachers.

Papua New Guinea's 'Radio Science Project' has been reported to be a big success. The project aims to develop a method for providing systematic, high quality instruction in Primary science — a subject for which many teachers consider themselves inadequately prepared. The project also aims to maximise cost effectiveness for distance education.

In Indonesia, which has more than 13,000 inhabited islands and islets, upgrading approximately one million primary school teachers using the face-to-face conventional approach, is a formidable task which may take at least 25 years to complete. Realising the limitations of conventional mode, Indonesia used the radio broadcasting as an instructional medium. The salient feature of this programme is mobilisation of resources by soliciting the collaboration of relevant agencies e.g. Ministry of Education, Ministry of Home Affairs and Radio Network etc.

The programmes of the Allama Iqbal Open University (AIQU), Pakistan are mostly for working teachers with the objective to (1) provide opportunities for teachers to upgrade their educational qualifications, (2) maximise the use of sources, other than the classroom, for education and development, (3). enable teachers in service to make the best use of time

and efforts by combining work and study for continuing education.

The pioneering and most popular course run by AIOU, Pakistan for working teachers so far has been Primary Teachers Orientation Course (PTOC). The course is media-based, consisting of a self-instructional package of 18 study units, supported by an equal number of radio programmes, two television slots and tuition by experienced teachers. In five presentations, since 1976, the PTOC reached 50,000 primary school teachers. With the main emphasis on improving teachers' practical skills and enhancing selected teaching competencies, the project effectively makes use of the video recording system and microteaching techniques. The most innovative feature of AIOU, is, establishment of a network of regional offices and study centres throughout the country. The existence of this network facilitates the teachers' participation in the programme.

In Sri Lanka, the Ministry of Education in 1984 explored the possibilities of utilising this alternative mode and implemented Distance Teacher Education Course (DTEC) for in-service teachers as initial professional education course. The programme assisted, supervised and monitored by Swedish International Development Association (SIDA) could provide training to 10,857 teachers. However, in 1991-92 under a new programme 33,177 already trained teachers joined DTEC Course. Another pilot project to train a large number of untrained teachers through distance mode was also launched in 1981. A trainee of this programme was expected to study the training material, which followed modular approach independently, and receive assistance through contact sessions. The main objective of Sri Lanka project was to reach teachers in distant and remote areas who had been deprived of the opportunity to further their education.

Similar considerations encouraged Bhutan government to adopt this mode to provide in-service training to teachers, as majority of teachers in Bhutan are untrained and unqualified and conventional INSET programmes organised during vacation fail to attract teachers in required numbers. The Bhutan model includes print and radio broadcast along with face-to-face lessons organised by mobile teams of teacher trainers at identified study centres.

The Bangladesh Institute of Distance Education (BIDE) caters through its regular TV programmes to about 25,92,500 students and 1,04,800 teachers. The institute had also introduced B.Ed. degree course for untrained teachers in 1985.

Maldives, which has approximately two hundred inhabited islands, finds it difficult to meet the national output of trained teachers through face-to-face conventional methods. Distance education, therefore, is seen as one of the means of contributing to the alleviation of this problem by providing professional support and opportunities for career development to teachers in the remote areas.

The aforementioned review indicates that use of distance education technologies is becoming increasingly popular in various countries for the inservice education of teachers, besides, different regular courses organised by distance education institutions for varying levels of students. In 1984 the International Centre for Distance Learning (ICDL) created under the auspices of the United Nations University conducted a survey of 1070 institutions in 88 countries. The distribution of distance education programme at various educational levels is given in Table 1.

Table 1. Distribution of Distance Education Programmes at Various Education Levels

Educational level	%
Primary (children and adults)	7
Secondary (children and adults)	25
Degree	20
Postgraduate	9
Further education	12
Continuing education for adults	27

Source : Based on data from ICDL data, In : A. Kaye, Distance education : the case of the art, 'Prospects', Vol. XVIII, No. 1, Unesco, 1988.

Distance mode of continuing education programme, therefore, is gaining currency specially for training of teachers at the primary level. Pakistan and Bangladesh are using this mode for providing training to middle as well as secondary teachers and Mexico uses it for lower secondary school students. The objectives of majority of training programmes remain the same, training a large number of untrained and unqualified teachers.

It is also reflected through the experiences of these countries that though the mode of developing instruction differs from country to country, most of them utilise self-instructional materials, radio and TV programmes. Brazil and Egypt use pamphlets, books and lectures also in addition to these. However, the two-way interactive television, computer assisted communication and other sophisticated media of communication are yet to be utilised for inservice training of teachers.

It is obvious from the table, that 27 per cent of the total programmes conducted through distance mode fall in the area of continuing education. This indicates the growing acceptability, popularity and utility of this unconventional communication mode even in the INSET programmes which have hitherto been organised predominantly in face-to-face mode.

INSET Through Distance Mode : Indian Experience

Keeping in view the limitations of conventional face-to-face training model and rising needs of fast changing world a beginning has already been made in India. Indira Gandhi National Open University (IGNOU), a premier distance teaching institute at the national level, has been making sincere attempts to provide teacher education training packages in the institutes of higher education and primary education.

IGNOU in collaboration with NCERT entered in the field of teacher education to cater to the training needs of primary teachers. A certificate programme in Guidance was launched as an outcome of this collaboration and another comprehensive programme entitled 'Diploma in Primary Education (DPE) is in the offing. The programme aims at providing training to the untrained primary school teachers in the North-eastern states, Sikkim and West Bengal, using a modular approach.

The University adopts multi-media approach such as self-instructional print materials, tutorials, and contact sessions, mid-term assessment of the progress of learners with the help of assignments, radio and TV broadcasts on a regular basis through an allotted slot in the National channel and teleconferencing to maintain direct contact with learners in various parts of the country.

The National Council of Educational Research and Training (NCERT) has made a pioneering effort in the use of interactive distance mode technology for in-service training of teachers under its centrally sponsored scheme 'Special Orientation of Primary Teachers (SOPT) in 1996. Utilising one-way video and two way audio tele-conferencing technique, the Teacher Education and Extension Department (DTEE) of NCERT organised two such programmes in 1996 known as 'Tele-SOPT' for the states of Karnataka and Madhya Pradesh. Both the programmes were of seven days duration and adopted similar transactional modalities and training contents. The medium of instruction, however, differed as the programmes were organised in regional languages. In the programme, organised for the state of Karnataka, in January 1996, 850 primary teachers

were provided training at 20 centres, while in the programme organised in the month of August 1996 for the state of Madhya Pradesh approximately 1400 teachers at 45 training centres of the state were simultaneously provided training. The Tele-SOPT programmes were followed by a subject specific training in the area of mathematics teaching known as 'Tele Maths' which was again organised for the state of Karnataka. This programme was of five days duration, for the primary teachers of Karnataka. 700 primary teachers at 20 training centres of the state had been covered through this Tele-training programme. Encouraged by the tremendous success of these programmes, Tele-conferencing technique was further extended to the orientation of teacher educators working in DIETs of Madhya Pradesh. As many as 462 teacher educators of DIETs were given orientation on roles and functions of DIETs, during five days of training programme organised in Oct. 1997.

The Tele-SOPT programmes had 14 sessions each and included topics such as Minimum Levels of Learning (MLL), use of Operation Blackboard (OB) material, multi-grade teaching strategies as well as content related topics like teaching mathematics, Environmental Studies (EVS) and language.

During the seven days programme about 600 telephone calls and 240 fax messages were received in the case of Karnataka and in the case of M.P. about 700 telephone calls and 200 fax sheets were received. Likewise, 250 telephone calls and 210 fax sheets and 283 telephone calls and 50 fax messages were received during the Tele-Maths and Orientation of DIET faculty programme respectively. This indicates that there was enough interactivity in the programme. An evaluation study was conducted by Phutela (1996) of the Tele-SOPT Karnataka. The pre-post test study to measure the effect of training on achievement of teachers was conducted, on a sample of 286 teachers of 8 centres, with the help of achievement test and observation schedules. The overall achievement gain was found to be significant at .01 level. Participants reported inputs such as presentation and demonstration (72%), Panel discussion (69%), reading materials (57), telephone interaction (68%) as very useful, interesting and effective.

During Tele-SOPT Madhya Pradesh the reaction of 685 teachers was taken on different aspects of programme such as quality of material, TV presentation, demonstration, group discussion and group activities etc. The reaction of participants indicated that teachers found different training inputs, training

methodology and technology useful, effective and informative. (Phalachandra, 1997).

These training programmes, though, conducted on experimental basis, have demonstrated large coverage capacity of distance mode without any transmission loss between the teaching source and learning ends, which ensures quality of training. This training mode having potential for wider coverage without compromising on quality is well suited to the training needs of the country.

Another significant development, in the use of distance technology for the training of teachers, has been the on-going District Primary Education Programme (DPEP) which envisages recurrent training of teachers. The main focus of training is to upgrade teachers in both content and pedagogy. Considering that the number of teachers and support personnel to be provided with training experiences on a recurrent basis is so large and the training needs to be catered to are so varied, any single approach to training will be highly inadequate to carry out this enormous task. Thus, training of teachers and other personnel in primary education sector through distance education mode has been made integral part of DPEP II.

The District Primary Education Programme (DPEP) envisages creating a sustainable system of in-service training of primary education personnel through distance mode by strengthening the ongoing training efforts, thereby contributing to the improvement of the quality of teaching learning process in the classroom. The target group of Distance Education Programme (DEP) — DPEP includes trained and untrained teachers, Head teachers, VEC presidents and members, BRC/CRC functionaries, DIET faculty, DPO personnel and NFE functionaries etc. However, teachers are the priority target group for DEP. The programme is currently in operation in all the 14 DPEP states, with the collaboration and the expertise of IGNOU and NCERT.

National Action Plan

A major break through has been achieved in the use of distance technology with the publication of National Action Plan (NAP). Realising the potential of distance mode the National Action Plan envisages a multi-layer INSET network with modern training facilities including interactive television and multimedia learning systems. The network will include national, regional, state, district and block level training centres. The multi-channel learning system will include :

- i) Home based self-learning through radio and television lessons and self-instructional printed material specially prepared for the trainees.
- ii) Site based action learning through action experiments, action research and field work.
- iii) Face-to-face interactive learning in groups in form of cooperative learning, group work etc.
- iv) Expert delivered interactive learning through interactive television.

The NAP emphasises utilization of existing infrastructure, upgrade and modernise it to enable adoption of modern training technology, instead of establishing any new institute for INSET through this innovative mode.

It is evident from the NAP and the experiments conducted by NCERT that integrated approach combining, both face-to-face and distance mode may be more effective for the training of in-service teachers. Organisation of training through distance mode also calls for joint collaboration and networking of various institutions at the national, state and grassroot levels.

New Initiatives

1. An ambitious project called 'Inservice Primary Teachers Training Using Interactive Television (IPTT-ITV)', to be undertaken in joint collaboration of UNESCO-ITU and Government of India during 1998-2000, is sanctioned for ten districts of Madhya Pradesh and six districts of Gujarat. This two way Video interactive teleconferencing project using sophisticated communication network along with self-study and locally facilitated face-to-face interactive training methodology, aims to validate and standardise technology specifications for interactive television (ITV) system along with the objective to design and pilot test a continuous in-service training of primary teachers and teacher educators working in DIETs through video conferencing.

Madhya Pradesh and Gujarat are already using one way audio and two-way video interactive teleconferencing technology for the in-service training of teachers. Gujarat conducted a two days teleconferencing programme in Feb. 1998 exclusively for in-service training of primary teachers of the state. Approximately 3000 teachers were trained through this programme. The experiment was conducted jointly by GCERT, Gujarat and DECU, ISRO Ahmedabad. The state government has also set up a

state level working group comprising eminent educationists, professionals, subject experts and members of DECU etc providing guidelines regarding training design and delivery system.

Both the states are, therefore, equipped with basic minimum infrastructural facilities which can be further strengthened to launch the multi-media IPTT-ITV video conferencing project.

2. More recently setting up of the UNESCO chair on teacher education through distance mode, in IGNOU has been a significant effort to monitor the quality of distance teacher training programmes as the main thrust of the chair is conducting evaluative research studies and innovative programmes developed in teacher education through distance mode.

INSET Through Distance Mode : A Critique

The advances in the field of communication network have created a new paradigm for the provision of education. Increasing use of satellite communication and information technology in the teaching-learning process and education of teachers is becoming a reality. Experiences of various countries are indicative of the far reaching promise of the interactive technology for improving the quality of education through inservice training of teachers. The two major issues of inservice education in India i.e. coverage of huge target groups at different levels of education, and quality of training inputs, can be addressed to a considerable extent through the use of distance education technology.

However, there is a long way to go. The experiments conducted in India at present are sporadic efforts and unless a system of INSET through alternative distance mode is developed, and training programmes are conducted on a regular basis, significant results cannot be achieved. Nevertheless, to build such a parallel system of training is not an easy task, as it requires highly skilled personnel, dedicated teamwork and sophisticated network which is, both expensive and difficult to get.

The cost of distance education is yet another issue. The cost of distance education will of course vary with the kind of technology used and the volume and extent of services provided, but there are no two opinions that the initial installation cost of the hardware required for teleconferencing is quite high and technically trained personnel are needed to utilise these facilities to the benefit of teachers to make it

cost effective. Regular use of these services may, therefore, help in reducing the cost of INSET through satellite.

There is also a danger lurking behind the euphoria concerning the marvels of technology in education that will need to be addressed at the highest policy level. The issue is one directly related to equity. This has been referred to as 'technological apartheid' and has the potential of widening the gap between institutions having access to technology and those who do not have. It is possible to address this dilemma through judicious provision of access to technologies and media. However, there is no denying the fact, that, the use of interactive video technology is well suited for the training of teachers specially in remote areas of the country.

Another crucial issue to take note of, is, adopting transactional strategy, suitable for the participants to sustain their interest and enthusiasm throughout the training programme. An intelligent integration of face-to-face conventional training strategy with the distance mode may prove effective in this regard.

It may, therefore, be concluded that though the distance mode of INSET with its wider coverage capacity may be a viable alternative to face-to-face model, its full capacities are yet to be exploited effectively.

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Need of Renovation in Teaching and Learning Processes in Pharmacy Education

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Pharmacy as a profession has scaled new heights with number of educational institutions providing quality courses. Contribution of these institutions towards research and development of newer drugs is appreciable. Despite this maturation some disgruntled voices are raised by the students. They show signs of nervousness pondering over their future job prospects. Here the teachers can play a vital role in dispelling the students's apprehensions and explaining to them the true picture. The teacher should become the career consultant of a student.

As we are moving towards 21st century changes in teaching methods like use of knowledge maps, multimedia computer and introduction of software programs and the web are imperative in pharmaceutical education.

Knowledge Maps

Knowledge maps, an instrument for teaching complex concepts are the information processing tools that represent information in two dimensional, node-link-node displays. The nodes represent the key concepts, or main ideas while the link represents relationship among concepts. Knowledge map provides a mechanism to transform standard printed material into a visual perspective. It acts as a device of communication which helps bridge the gap between teacher and learner. Knowledge maps are of two types. Maps which represent an overall view of information contained or presented on one page while stacked maps are interlocked to several other knowledge maps which divide the information into more manageable portions.

The topic "Treatment of Cardiac Arrhythmia" in Pharmacology and "Structure of Atom" in Pharmaceutical chemistry and many other complex concepts can be explained easily using knowledge maps.

Multimedia Computers

Multimedia enhances the standard of education technology. Multimedia is the integration of sound, animation, still images, hypertext and video through

a computer programme. Some advantages of multimedia computers are : No wastage of rubbing out, drawing and writing on blackboard; Easy to learn and operate; Graphics and diagrams can be reproduced perfectly; The animation in diagrams can hasten the understanding process; Multimedia storage and retrieval system can contain more information than any human can possibly embrace. It can have many terminals through which students can access the information; and the main educational benefits are creative thinking, individualised teaching-learning and the student learns at his own pace and time.

The benefits of multimedia computers are achieved through different approaches such as Audio Visual Computer Aided Tutor, Computer Aided Visual Instruction System, Interaction Video Information system, Computer Guided Learning System and LOGO Learning System.

The aforesaid approaches reveal that the use of multimedia in education enhances teaching efficiency. By this method the students learn faster and have better retention than the students trained by conventional methods. By the use of multimedia computer we can diminish the gap between traditional method and the advanced technology in the field of education.

Introduction of Software Programmes and the Web

Software packages are now available in major areas of pharmacy, in both teaching and research. The internet and world wide web are powerful tools of today.

These are the largest and fastest growing communication network on earth. The Internet is an invaluable tool in the field of education and research since it facilitates learning of new materials and exchanging ideas. Some of the useful softwares are :

1. *Behavioural Pharmacology Tutorial (PC/MAC)*

This tutorial demonstrates the use of animals in drug screening procedures. Traditional experimental procedures are expensive, prone to failure and difficult to perform. This tutorial replaces traditional experiments that used live animals. It guides students through the behavioural profiles of many classes of

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drugs and assists their understanding with video clips. It depicts the importance of drug screening procedures in the drug discovery process.

2. *Expharm (PC)*

It stimulates experiments like effect of drugs on i) isolated frog heart, ii) rate of blood pressure, heart rate and respiratory rate of dog, iii) locomotor activity of rats, iv) rabbit's eye, evaluation of analgesic using mice; and dose response curve and matching assays.

3. *Cardiolab (PC)*

It stimulates cardiovascular experiments *in vivo*. The programme can also mimic stimulation of vagal and sympathetic nerves.

4. *Neurosim (PC)*

It is a useful tool in teaching neurophysiology.

5. *NMR Problem Solving*

Proton magnetic resonance (PMR) spectra package is a package in which proton magnetic resonance spectra are displayed and students identify the sample using their background knowledge of NMR spectroscopy and the programme tools. The programme provides realistic PMR spectra for a large number of molecules.

6. *Computer aided learning packages*

These software programme can be used in a variety of ways providing workshops and tutorials. The teaching can be improved and more knowledge provided to the students through Internet and Web. Internet is a world wide communication network of networks that provides users with communication, publications (magazines and newspapers from all around the world). The Web contains a wealth of information on almost anything. The institutions should have their own web sites providing information about the latest developments taking place in the pharmacy field world wide.

Improving the teaching techniques is not just sufficient. The fusion of industry practices and the theory part of the course is needed. Many international Information Technology players such as Microsoft, IMB, Novel, Oracle and others have entered the training field. The Authorised Training Centre (ATC) set up by them play an intermediate role between teaching and industry environments. The ATCs have well trained staff, current software tools and quality standards in their chosen area of training. An expert from industry hardly finds any time

to come to the educational institute and deliver a course.

ATC linkages will also create industry practices awareness amongst the students. This in turn would create a profound motivation to learn and thus be able to participate in the ongoing Information Technology revolution. This kind of partnership will bridge the gap between what industry needs and what an academic institute can deliver.

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Institutional Culture Management

(Contd. from page 2)

of the social and behavioural environment. A strong innovative culture, when matched with a dynamic environment, is a good fit. On the other hand, a strong culture that is low on individual initiative and high in control is mismatched to a dynamic environment. If the culture is strong, it will influence the effectiveness, by conveying to its members what behaviours they should engage in and by increasing their sense of identification with the institute. The culture conveys to members things like the acceptability of absenteeism and when at work how much effort one should give. A strong culture can stimulate productivity or act to restrict output. The stronger the culture, the clearer it is for what we stand. This makes it easier to identify with the system, makes work seem more meaningful, and enhances the individual. Strong cultures lead to increased satisfaction.

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Providing Market Orientation to Graduate Courses in Economics

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Introduction

The growing educated unemployment is a major challenge to both academics and policy makers. When the state expends every year thousands of crores of rupees on higher education which actually facilitate substantial addition to the number of educated unemployed, it ought to be a cause for serious concern. The high cost of producing educated labour only aggravates the problem of educated unemployment. However, the crux of the problem lies elsewhere. It is a problem of mismatch between skills imparted in educational institutions and the skills demanded in the labour market. There are three basic issues related to this problem : one, the cost of producing skills or the cost of education; two, identifying the skills demanded in the job market; and three, imparting the right type of skills in the educational institutions.

As the analysis of cost of education is beyond the scope of this paper, we make an attempt to analyse the congruence and incongruence between the skills achieved in educational institutions and the skills needed in the labour market. This paper becomes relevant in the face of the disturbing fact that the incidence of unemployment is quite high among economics graduates.

Need for Restructuring the Curriculum

The B.A. and M.A. courses in Economics are being described as non-utility courses for quite some time. It is a fact that the self financing Arts Colleges do not offer courses on Economics, as these courses do not impart the quantum of marketable skills, that is atleast equivalent to the price the students pay to acquire the degrees. The ill-conceived course structure can be one of the major reasons for this sad state of affairs. Therefore, modifying the existing curriculum to suit the requirements of the economy is the need of the hour.

Traditionally, the syllabi of most economics courses have a strong bias towards economic theories. This has perpetuated the misconception that

economics is only an abstract subject that lacks scope for fruitful application in analysing real life problems and for putting to practical use. These courses test only the cognitive abilities and not the analytical skills of the students. The skills that are imparted through the courses have only a limited demand in the economy, and are restricted to teaching and research. A major lacunae in the course structure is that many major and emerging branches of economics do not find conspicuous place in it. Applied economic analysis, economic policy making and administration, resource and environmental economics, human resource development, public choice and legal economics are a few of such branches. This itself is a valid reason for restructuring the syllabi, and this is a reason also for the unemployment of economics graduates.

Need for Professional Economists

Basically, economic literacy is essential even for an ordinary citizen of our country to understand his desires, priorities and to comprehend and adapt to the ever-changing economic scenario. The ongoing changes in domestic and international economies have only highlighted the need for acquiring at least the rudimentary knowledge of economics by the layman to profitably conduct his activities in the ordinary business of life. Given this, it is easier to understand the importance of the role of economists in different sections of the economy and at various levels of decision making.

Now let us discuss the role of economists in policy-making and implementation by the state. In Indian economy, hitherto, State intervention was pervasive and policy making and implementation were, by and large, politically motivated. Usually the economic portfolios such as Finance and Commerce are not given to professional economists but to some modern politicians who are assumed to be possessing some knowledge of economics (with a few exceptions like Manmohan Singh). The administrative machineries in these ministries are once again headed by bureaucrats who are trained only in public administration (with a few exceptions like M.S. Ahluwalia). Most of these bureaucrats do not have realistic understanding of economic problems and also lack specialized knowledge to devise appropriate economic policies and programmes. Of course, the planning commission, economic advisory coun-

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cils and some important posts in various ministries are exception to this and are manned by professional economists. In spite of the presence, though weak, of economists at the various apex institutions, the public policies framed and implemented are politically motivated and populist. Of course, politics and economics have been inseparable since the days of Adam Smith. But with the dominance of selfish politicians, controlled by the powerful lobbies of mega industrial houses and large farmers, the economists are relegated to the background in the arena of economic policy making and administration.

Eversince the economic crisis of 1991, people have started showing keen interest in the economic affairs of the country. The wide publicity given by the government to the new economic policy, and the importance it received in public debate, have increased economic literacy in the country. One can wish this trend to continue and grow, so that the political considerations may give way to economic rationale in our policy making. Consequent to the implementation of the new economic policy, the state is being slowly replaced by the private sector to ignite and drive the engine of economic growth. This has brought fundamental changes in economic decision making by the state. Henceforth, states' policies have to be built on sound economic foundations rather than dictated by short-term political gains. This has definitely put economists in prominent position in the government, giving them explicit role in policy making and implementation.

The private sector, which has so far grown under the protective umbrella of import-substitution strategy of industrial development, is now open to competition from the rest of the world, thanks to the policy linked structural adjustment loans from the twin institutions and the acceptance of Dunkel proposals. The private sector now needs the services of economists to formulate the strategies in the face of fast changing domestic and international economies. In a market economy, producers and traders can no longer get tailor made policies from the state. Therefore, economists are set to play vital roles in the various sectors of the economy where they were absent so long. It is to be noted that the role of an economist in the industrial and service sectors can at best be advisory in nature. They can help entrepreneurs to arrive at decisions by providing the likely impact of economic policy in a particular industry, and suggest strategies to adapt to changing market situations.

Restructuring Economics Courses

The restructuring of economics courses should be preceded by an effort to understand the various skills of economists that are actually needed in dif-

ferent sectors of the economy. In this regard, discussions with employers and consultant economists associated with the various sectors of the economy will be a good starting point. Secondly, a review of the curriculum and teaching methods adopted in developed countries would be useful, because, in these countries, economics courses are as professional as the courses in Engineering or Medicine. Lastly, a nation-wide debate involving economics teachers, researchers, professional economists, captains of industry, and other sectors of the economy is also to be considered.

Realising the absence of such a ground work, we embark on giving a tentative scheme for the reconstruction of economics courses based on our observation of the economy, labour market, and experience in teaching of economics.

1. The medium of instruction should be English for two reasons : (a) In a multilingual society there cannot be a better language of communication to cross linguistic barriers and in the context of globalisation of Indian economy its relevance is unquestionable, and (b) Dissimination of knowledge at higher educational level all over the world is mainly in English, except where translation is easier and scientifically possible as in China, Japan, and France.

2. The restructuring of syllabi should be accompanied by changes in evaluation techniques. The examinations in Indian universities test only the cognitive abilities of the students. The analytical powers of the student should be effectively examined through objective type questions, problems to be solved, and project reports.

3. The teachers who have been trained in traditional system, must be orientated to new teaching methods and modern developments in economics.

4. In Table 1, we have shown the restructured syllabi and its link with the relevant job opportunities. The agricultural sector is not included in this scheme. The reason is that agricultural economics is taught as a specialized branch of agricultural science by agricultural universities in India. The experiences of agricultural universities in formulation and conduct of economics courses for agricultural scientists will be of immense use to draw similar programmes in collaboration with industrial and service sectors.

5. A professional course in economics should have a duration of four or five years. In the first two years, the course content can be uniform to all students covering the basics of economic theory, Indian economy, and quantitative techniques. During the rest of the course period, the students can choose their study of specialisation from the first four groups in Table 1.

6. The course structure given in group five is entirely different from the rest of the four groups. The fifth group is a course structure suitable for a three year degree course. This course will provide skills required for a field worker/data collector in statistics and related organisations. The demand for this type of workers has been on the increase ever since the liberalization process started in the country. This will continue to increase as the need for economic analysis increases in every sphere of social and economic activity.

Unless practical training is provided to the students either during their study period or after completion of the course the students may find it difficult to cope with the emerging situations in the market. Almost all professional courses have a separate practical training programme with its content. Therefore practical training is an important element that has to be included in the syllabus.

Economy and Education—Institutional Interaction

What we are trying to say through this curriculum modification is that there should be a fundamen-

tal change in teaching and learning process in Economics discipline. The essence is that we will be imparting certain skill to the students who ought to use it practically. Therefore, we can make the programme more meaningful by standardising the subject as application oriented. As the course has been developed to cater to the needs of the government, business, and industrial communities it would be better to invite leading industrial houses and government organisations for a discussion and get their opinion as well. Collective curriculum development has its own elements of advantage for the programmes. Further, the educational institutions should seek the cooperation of various sectors and involve them in the conduct of educational programmes, as these help quick identification of the changing labour market needs and imparting the requisite skills.

For instance a strong tie-up arrangement is found between Industry and University in the USA and Japan. In Japan, the Ministry of International Trade and Industry (MITI) is closely involved in planning and development of university courses. The American universities are considered to be a key factor in

Table 1 : The Restructured Syllabi and the Appropriate Job Link

Group	Nature of Employment	Papers
I	Economists and Economic Administration in Public Administration	Economic theory; Political Economy; Indian Economic Development & Policy; Fundamentals of Statistics & Maths; Public Choice and Legal economics; Economic system; and Computer Applications.
II	Consultant Economists in Industrial Firms	Economic Theory; Indian Economic Development & Policy; Fundamentals of Statistics & Maths; Industrial Economics; Managerial Economics; Management Accounting; Business Management; Business Legislations; Marketing Management; Human resource Management; Production & Material Management; Export Management and International Relations; Management Information Systems; and Computer Applications.
III	Consultant Economists in Service Sector	Economic Theory; Indian Economic Development & Policy; Fundamentals of Statistics & Maths; Financial and Stock Market Analysis; Money, Banking & International Trade; Accounting techniques; Business Legislations; Project Planning & Appraisal; Human Resource Development; Service Sector Economics; and Computer Applications.
IV	Economics Teaching and Research	Economic Theory; Indian Economic Development & Policy; Development of Economic Thought; Economic History and Sociology; Research Methodology and Statistics; Mathematical Economics; Econometrics; Resource and Environmental Economics; Money, Banking and International Trade; and Computer Applications.
V	Data Collection and Compilation (for Statistics & Census Department; Research organisation and Market Research group)	Economic Theory; Indian Economic Development & Policy; Research Methods; Sampling Techniques & Census Operations; Vocational Training; Data Collection & Compilation; Applied Statistics; Econometrics; Computer Applications & Project.

the economic revitalisation of the society. The people of America believe that universities can retain the work force, create skilled and a new work force and generate new knowledge and technology, which would accelerate the production process especially in the area of intense local and global competition (Ananta Giri 1995 : 38).

The technical universities and institutions (IITs, IISc, RECs, IIMs and leading universities) in India have done some pioneering work in developing Industry-University partnership for mutual benefits. These institutions have signed Memorandum of Understanding (MoU) with various industrial associations and have embarked on specific projects, which could be of great benefit to the industry.

Recently, Madras University has come up with the idea of linking University with Industry and conducts Research and Development programmes for mutual benefit. They have introduced a University Industry Interaction Centre (UIIC), which launched "an industrial associationship scheme" by which industrial units would be attracted to become members of the centre for effective participation in all its activities (Anon 1997 : 21).

This kind of interaction will benefit the University, students, and industry in many ways, namely, (i) reduction of the mismatch between a graduate and the requirements of the work place; (ii) both way flow of ideas and personnel; (iii) sharing of expensive facilities like libraries and costly equipments for joint research; (iv) transfer of market consciousness from Industry to University; (v) facilitate community activity and other extension work; (vi) above all this transaction will be useful for internship, on-line experience during pre-job training and education (Mitra 1997 : 1).

Similarly other universities and higher educational institutions can also make linkages with industries and government organisation in order to generate more employment opportunities for the students of Economics. Initially the institutions shall try to establish voluntary relationship with industries located in the region through circulating newsletters and magazines. In the circulating letters the universities should specify the courses offered by the department of Economics, its relevance to business world, and how the students have been trained or equipped with creative ideas to fit into the industrial requirements of the times. In this process, the universities shall also think of giving training programme to industrial workers. This type of training programmes would not only bring revenue to the educational institutions but also an interaction with industries thereby the placement for the students becomes easier.

Finally, introducing an "exchange programme" from both sides is another area to be worked out. This will help the students and teachers to get exposed to industrial functioning and the problems confronted by business organisation. Regular training programme for the industrial workers, industrial visits, summer placement for the students, conducting campus interviews will be an additional advantage the students will be receiving in due course.

Conclusion

Many of Arts and Humanities courses are described as 'non-utility courses' as there is a high incidence of unemployment found among the graduates and postgraduates in these disciplines. The reason is that, these courses fail to impart skills, which the students can later profitably sell in the labour market. We have tried to provide a tentative restructured course design that may provide productive skills for economics students. This paper leaves a host of questions unanswered, namely, what is the quantum of economics manpower needed?, how to frame teaching methods and evaluation techniques? etc. "Teaching of Economics" is a potential area of research and it is needless to elaborate its importance and relevance.

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Transgenic Research in Biotechnology

Resistance all over the country to transgenic research, including crops being burnt, built up by the "pesticide lobby, anti-MNC groups and lack of information" will not deter the Government, which is determined to accord top priority to this frontier area of biotechnology. This was stressed by an array of agricultural scientists, bio-technologists, including Secretary, Department of Bio-technology, Dr. Manju Sharma, Director-General of the Indian Council of Agricultural Research, Dr. R.S. Paroda, Director of Indian Agricultural Research Institute, Dr. R.B. Singh and Dr. R.R. Khan from the Ministry of Environment and Forests, Dr. E.A. Siddique, National Professor ICAR, Prof. Ashish Datta, Vice-Chancellor, JNU, Prof. Akhilesh Tyagi, head of Plant Molecular Biology, Delhi University, who met in New Delhi recently to make this point and allay the prevailing misconceptions about transgenic research and bio-safety aspects.

The transgenic research pertains to identifying new genes, novel nucleic acid sequences and incorporating these valuable genes into crops to make them disease and pest resistant; salt and drought resistant besides introducing new agronomically important traits.

Dr. Manju Sharma informed that with 60 million acres already under cultivation worldwide with transgenic plants, India cannot lag behind others in this technology, which would help India reduce the use of pesticides worth Rs. 1,500 crore a

year besides saving losses worth crores due to crop damage.

Globally, the scenario is that 45 countries have conducted 25,000 transgenic crop field trials on more than 60 crops, including corn, tomato, potato, soyabean, cotton, melon, squash, canula, sugarbeet and tobacco from 1986 to 1997. The global area under transgenics in 1996 was 7 million acres and in 1997 there was a 4.5 time increase and it jumped to 31.5 million acres, she said.

The countries, which top the list, were US, China and Canada. Mexico, US, China, Australia, Argentina, South Africa had already commercialised transgenic products, she added.

She said in order to increase agricultural productivity and develop crops with the desired traits, the Department had supported seven centres of plant molecular biology and a large number of research projects in the country to develop transgenic technology. There were 10 traits for which genetic engineering was being done worldwide, herbicide tolerance being the highest 30 per cent, followed by insect resistance 24 per cent, product quality 21 per cent and viral resistance 10 per cent.

As far as the controversial Bt Cotton gene of which 100 grams were given by Monsanto to Mahyco and for which the Government had given permission for field trials, it was pointed out that multi-centric trials were going on at 40 places and there were several regulatory bodies, like the Review Committee on Genetic Manipula-

tion and Genetic Engineering Approval Committee, which would look at the findings before it could be commercialised.

Dr. Paroda said this gene was supposed to give resistance against American Bollworm pest for which nearly 35,000 metric tonnes of pesticides were being used in the country today.

The Bio-technology Department is also supporting two multi-institutional projects on the development of transgenic cotton and quality trait studies in wheat.

A large number of countries were looking to India as a model for their bio-technology. "We are way ahead of many developed countries in this regard and our regulations are very stringent", said Dr. Manju Sharma. Mexico, Brazil, Egypt, Sri Lanka and Venezuela had shown interest in our biosafety guidelines, she added.

Accepting that there is legitimate public concern the world over and in India about the release of the genetically modified organisms into the environment and in order to ensure environmental safety, guidelines had been prepared and revised in 1988 for research in transgenic plants having adequate safeguards and built-in monitoring mechanisms.

In India, institutes like the Central Tobacco Research Institute, Rajahmundry, Bose Institute, Calcutta, Tamil Nadu Agricultural University, Coimbatore, University of Delhi South Campus, National Botanical Research Institute, Lucknow, ICAR Sub-station at Shillong, IARI, New Delhi and Plant Genome Research Centre,

JNU, New Delhi, are also actively involved in research on transgenics covering tobacco, rice, mustard, cotton, potato, brassica, brinjal, tomato, cauliflower and results were expected in two to three years.

She said Transgenic Containment Facilities would also be set up in two or three places in the next six to eight months.

Community Education Centre

Community colleges are the need of the hour as they provide need-based and skill-based training to young men and women of all categories thus brightening their lives, said speakers at the inauguration of Madras Centre for Research and Development of Community Education in Chennai recently. The UGC Secretary, Dr. G.D. Sharma who inaugurated the centre, said higher education would serve no purpose if it was not socially relevant. He hailed the concept of the community college as it was providing a link between higher education and the needs of the community. He wanted community colleges to impart skills, knowledge and values to the students so that they were useful to society.

Mr. G.K. Moopanar, President of the Tamil Maanila Congress, said the community college was a viable concept and the country was in need of such colleges. He also released the publication "Including the Excluded" on the occasion, which was received by the Prince of Arcot, Mr. Mohammed Abdul Ali.

Rev. Arul Das James, Archbishop of Madras-Mylapore, who presided, said community colleges were emerging as an alternative to the present system of education. They were providing an access

and equal opportunity to the economically, socially and educationally backward segments of society. Students of these colleges were trained on various skills to help them find employment. Dr. Gnanam, Chairman of the National Accreditation and Assessment Council, said of late community colleges were gaining momentum and were being accepted by educationists. They were not an alternative to the existing education system but a part of it. With a bottom-to-top approach, these colleges were serving society by providing need-based education. Dr. K.P. Aravanan, Vice-Chancellor of the Manonmanian Sundaranar University, Tirunelveli, said the increasing number of drop-outs between secondary education and higher education was causing concern as most of them turned into anti-social elements.

Dr. Jagadeesan, Vice-Chancellor of the Bharathidasan University, Tiruchi, suggested that students in regular stream should be trained in job-oriented courses also to equip themselves in various trades. Mr. Canon Ivor Smith, Chaplain to Her Majesty the Queen of England, said the foundation of community colleges should be strong and organisers should rely more on quality than on quantity.

Dr. Mani Jacob, General Secretary, All-India Association for Christian Higher Education, said the University Grants Commission should support the community colleges as they were a new innovation. The colleges should not function like any other affiliated college but a college with a difference. Mr. Sean Smith, India Project Manager, Bilston Community College, said the purpose of the college was to include those who had been excluded so far.

Dr. Xavier Alphonse, Director of the centre, said objective of the

research centre was to promote and popularise the concept of the community college system through seminars and workshops and to serve as a coordinating agency for community colleges so that the experience and expertise were shared by all.

Rev. D. Jeyaraj, Chairman of the Madras Centre, said the Department for International Development, UK, would be supporting the centre as a pilot project for the next three years.

Programmes in Astronomy & Astrophysics

The National Centre for Radio Astrophysics (NCRA) of the Tata Institute of Fundamental Research selects bright, highly-motivated students as Research Scholars every year for a Ph.D programme in Astronomy and Astrophysics. The minimum required qualification is an M.Sc. degree in Physics. Those with a B.E./B.Tech. Engineering degree but with a strong foundation in Physics can also apply. Selection is based on written tests and interviews held generally in late June or early July. Selected students have to satisfactorily complete a year of course work in physics and astrophysics as well as an experimental project before starting their Ph.D research work. As part of their research programme, all Research Scholars are expected to gain hands-on experience with GMRT. This provides a unique opportunity to work with a world-class experimental facility. Those with an experimental bent of mind also have the opportunity to develop cutting edge hardware and software.

NCRA also periodically selects students with outstanding academic records, as well as an

(Contd. on page 20)

Education India — 5

Total Enrolment in Higher Education (General) by Faculty and Level

Faculty	All India											
	Doctorate/Research				Postgraduation				Graduation			
	1971	1981	1991*	1997	1971	1981	1991	1997	1971	1981	1991	1997
Arts	10119*	13008	@	@	90970	160673	202831	278610	764387	1016036	1534348	254002
	(97.50)	(53.34)			(62.88)	(63.17)	(37.26)	(60.46)	(51.23)	(49.76)	(46.70)	(54.20)
Science	**	10403	@	@	37806	52809	71891	102617	495285	489415	756896	1055312
		(42.68)			(26.13)	(20.76)	(20.30)	(22.27)	(33.19)	(23.97)	(23.03)	(21.70)
Commerce	259	971	@	@	15830	40879	79494	79574	232404	536217	994532	117318
	(2.50)	(3.98)			(10.99)	(16.07)	(22.44)	(17.27)	(17.66)	(26.27)	(30.27)	(24.08)
Total	10378	24077	27815	40543	144666	254261	354216	460801	1492076	447359	3285776	487191
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Enrolment of Girls in Higher Education (General) by Faculty and Level

Faculty	All India											
	Doctorate/Research				Postgraduation				Graduation			
	1971	1981	1991*	1997	1971	1981	1991	1997	1971	1981	1991	1997
Arts	2461*	4809	@	@	30791	58763	76896	108311	255753	382291	615393	1106233
	(99.88)	(63.51)			(78.60)	(75.77)	(66.12)	(65.76)	(72.19)	(63.33)	(54.01)	(60.75)
Science	**	2613	@	@	8093	13554	24349	37777	92019	136363	281035	366536
		(34.51)			(20.66)	(20.05)	(20.94)	(22.93)	(25.98)	(22.59)	(24.67)	(20.14)
Commerce	3	150	@	@	292	3241	15043	18626	6492	84994	242396	348052
	(0.12)	(1.98)			(0.74)	(4.18)	(12.94)	(11.31)	(18.33)	(14.08)	(21.32)	(19.11)
Total	9598	7572	9129	11854	39176	77538	116288	164714	354264	603648	1139364	1820921
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Enrolment of Boys in Higher Education (General) by Faculty and Level

Faculty	All India											
	Doctorate/Research				Postgraduation				Graduation			
	1971	1981	1991*	1997	1971	1981	1991	1997	1971	1981	1991	1997
Arts	7658*	8194	@	@	60179	101910	125935	170299	508634	633745	918955	153406
	(96.66)	(48.76)			(57.05)	(57.64)	(52.93)	(57.52)	(44.70)	(44.07)	(42.81)	(50.20)
Science	**	7790	@	@	29713	37255	47542	64840	403266	353052	475861	69197
		(46.35)			(28.17)	(21.07)	(19.98)	(21.90)	(35.44)	(24.35)	(22.17)	(22.65)
Commerce	256	821	@	@	15596	37638	64451	60948	225912	451223	751596	82506
	(3.34)	(4.89)			(14.78)	(21.29)	(27.09)	(20.58)	(18.86)	(31.38)	(35.02)	(27.04)
Total	7914	16805	18696	28689	105490	176803	237928	296087	1137812	1438020	2146412	305104
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

+ Figures relate to 1989-90.

* Includes enrolment in Science.

** Not separately available.

@ Break-up of Arts, Science and Commerce is not available.

Figures in brackets are Percentages in relation to total.

Progress of Admission and Out-turn (Selected Professional Courses)

Year	All India							
	Engineering				Medical (Allopathy)		Dental	
	Degree Level		Diploma Level					
	Admission	Out-turn	Admission	Out-turn	Admission	Out-turn	Admission	Out-turn
1951	4,788	2,893	6,216	2,626	2,675	1,557	18	14
1961	15,487	7,026	26,525	10,349	5,874	3,387	333	140
1971	18,207	18,223	33,154	17,699	12,029	10,407	562	478
1981	34,835	19,012	61,114	35,487	11,431	12,170	705	501
1986	36,328	29,291	94,728	50,390	12,860 ¹	12,490 ¹	1,089	567
1987	55,508	30,078	102,525	56,560	14,070 ¹	12,640 ¹	1,461	677
1988	56,867	33,864	104,113	56,229	14,340 ¹	13,396 ¹	1,715	660
1989	62,603	37,615	112,899	60,125	14,540 ¹	12,492 ¹	1,664	821
1990	66,686	41,464	111,262	63,794	14,600 ¹	13,500 ¹	1,960 ¹	1,280 ¹
1991	70,481	44,724	117,835	65,325	14,700 ¹	14,300 ¹	2,160 ¹	1,500 ¹
1992	73,018	44,144	119,465	63,888	14,750 ¹	14,500 ¹	2,280 ¹	1,460 ¹
1996	103,933	60,749 ²	161,125	95,283 ²	NA	NA	NA	NA

¹ Corrected to account for non-responding institutions.² Estimated.

*Source : Manpower Profile India Yearbook 1998, Institute of Applied Manpower Research, New Delhi.

(Contd. from page 17)

aptitude for experimental work, for the Research Trainee programme. Research Trainees have to undergo a two-year training programme; on successful completion they are offered regular staff positions. Selected students are required to take up long-term astronomy-oriented projects for the observatory or other challenging problems in the frontiers of radio astronomy instrumentation and techniques which will also lead to a Ph.D.

The Centre also offers post-doctoral fellowships and visiting positions for work in astronomy and astrophysics, radio astronomy instrumentation, image processing or software development. Exceptionally motivated candidates are also considered for regular staff positions.

Under its Visiting Students Research Programme (VSRP), motivated students in the pre-final year of their MSc/BE/BTech are selected to spend about 6 weeks at NCRA during summer to work on specific projects in astronomy under the supervision of NCRA faculty. They are required to present a seminar and a report on their project, and appear for a written test and interview. Those performing well are preselected to join as Research Scholars after satisfactory completion of their degree.

A few bright students in different semesters of their BE/B.Tech/M.Sc. courses with a strong academic interest are generally selected every year to do short or long-term technical projects at the Centre. The projects involve instrumentation, signal processing or software development and enable the student to get hands-on experience with state-of-the-art technology being used in GMRT. The short-term projects are

usually given during summer and last about 6-8 weeks, while the long-term projects (for students from colleges in Pune) can last up to a year.

For further details, write to NCRA (TIFR), P.O. Box No. 3, Pune University Campus, Ganeshkhind, Pune-411 007.

Ambedkar Varsity Foundation Day

The Babasaheb Bhimrao Ambedkar University, Lucknow, recently celebrated its third Foundation Day. Speaking on the occasion, Chancellor of Gujarat Vidyapeeth, Professor Ramlal Parikh, who was the chief guest, expressed his happiness over starting novel courses in the university. Praising courses of Rural Technology, Ambedkar Studies and environmental science, he said the varsity by starting these courses had revolutionised studies. He also said this university should deliver as per the goal of 'A Social Revolution Through Education' set by Dr. Ambedkar. Prof. Parikh emphasised that education was not merely for information gathering, but the purpose should be learning to learn, to do and to live together with patience and tolerance. He referred to the recommendations of the Kothari Commission that universities were far from people and hoped that at least this university would try to bridge the gap between universities and the common man.

Complimenting the Vice-Chancellor of Ambedkar University, Prof. D.R. Gadekar, Prof. Parikh said that he would succeed in fulfilling the desire and the aspiration of the nation. He also hoped that the university would be a frontline university in the next century.

The Varsity Vice-Chancellor,

in his address listed the academic activities and the development of the university campus.

Occupational Safety and Health

Sri Ramachandra Medical College & Research Institute, Chennai and The National Institute for Occupational Safety & Health (NIOSH) Educational Resource Centre, Johns Hopkins University School of Hygiene & Public Health (USA) in collaboration with United Nations Industrial Development Organization, Regional Programme Office, Chennai, Inspectorate of Factories, Government of Tamil Nadu, Central Leather Research Institute, Chennai, Indira Gandhi Centre for Atomic Research, Kalpakkam, Federation of Indian Chambers of Commerce and Industry (FICCI), New Delhi, The All India Skin and Hide Tanners and Merchants Association, Chennai, Indian Leather Industry Foundation, Chennai, National Safety Council (Tamil Nadu Chapter), propose to organise a National Seminar on "Occupational Safety & Health" and Technical Training Workshop on "Industrial Hygiene Measurements" on 1-6 March, 1999.

The objectives of the seminar are to (i) Increase awareness on OSH issues industry-wide; (ii) Provide an in-depth overview of the field of industrial hygiene along with hands on exposure to state of the art IH measurements; (iii) Bring to the forefront the resources available within the country so as to encourage better industry participation in OSH programmes; and (iv) Facilitate partnerships between key national & international organizations to develop sustainable initiatives in the field of OSH. It is intended for Occupational safety and health professionals from the industries, Occupational

health physicians, Managers/ Technical professionals from industrial hygiene laboratories, and Members from academic and R&D institutions.

The seminar themes include : Status of Occupational Safety & Health National & International perspectives; the UNIDO Sector Specific OSH initiatives in South East Asia — Case of Tanning/ Leather Industry; Industrial Hygiene Measurements State of the Art; Occupational Health and Safety Considerations for Women; and Strategies for Designing Sustainable Initiatives in Occupational Safety & Health.

The Technical Workshop Sessions will focus on Industrial Hygiene Overview; Recognition, Evaluation & Control of Hazards in the Industrial Environment; Air Sampling; Air Sampling Laboratory; Industrial Noise and Hearing Conservation; Laboratory in Noise Measurements; Heat Stress & Light Intensity Measurements; Radiation Safety & Health; Laboratory in Radiation Detection & Measurements; Biological Markers for Industrial Chemical Exposure; Clinical Tests used in Occupational Health Surveillance.

Further details may be obtained from Dr. Kalpana Balakrishnan, Head, Environmental Health Engineering Cell, Sri Ramachandra Medical College & Research Institute, 1, Ramachandra Nagar, Porur, Chennai-600 116, Tamil Nadu. Fax : 091-44-476 7008.

Sanskrit Vidyapith Convocation

Stressing the need for increasing the budgetary allocation for education, the Union Minister for Human Resources Development, Dr. Murli Manohar Joshi, has suggested imposing a surcharge on In-

come Tax, Excise and Customs duties payees for generating more resources to fill the gap. He said Rs. 40,000 crores was required for development of education and of this Rs. 26,600 crores was needed for primary education alone.

"Now, we cannot wait for long and if we do not address the problem immediately the country will be further pushed backward on the development scale," he said while speaking at the convocation function of Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyapeeth in New Delhi recently.

The affluent had a lot of surplus money to spend on luxury goods and, therefore, they should be made to pay for the development of human resources, Dr. Joshi said, adding that the spending on education had been abysmally low.

He said he had been able to persuade the Finance Minister to increase the allocation in the last Budget for the human resources development but the increase was far short of the requirements. Development of human resources had become the focus of economic development across the world.

Taking a swipe at "pseudo intellectuals" who reject Sanskrit as a dead language, Dr. Joshi said the ancient language is living, thriving and potent. It is taught in many foreign countries, including Hungary, Germany and the US."

He made three categories of Indians — Indians, non-resident Indians and "non-Indian residents" — and said that it was the third category which was causing the biggest harm to the country. They had failed to evaluate the country's past in a proper perspective.

He urged Sanskrit scholars to come forward in defence of the

language and put across the point that it was not dead. Sanskrit scholars should also make use of modern technologies to propagate the language through CD ROM, he added.

Stressing the need for developing computer software in Sanskrit and all the other Indian languages, he cautioned that if it continued to be developed in the Roman script the country would face a real threat of monopoly of knowledge and information.

Sanskrit learning should be made compulsory for scientists as without knowing the language they would not be able to evaluate the contributions of the ancient Indian scientists. "We have been carrying several misconceptions about scientific discoveries and inventions in the ancient past as we do not know Sanskrit," he said.

He reiterated his oft-repeated call for a review of the education system. There were strands in Indian philosophy which could give a new dimension to modern society and equip people to face challenges. The past should be re-evaluated in this context and this was not possible without Sanskrit. Dr. Mandan Mishra of Rajasthan, Prof. Govind Chandra Pandey and Vaidya Bhuvan Chandra Joshi of U.P., Prof. Hermnath Chatterjee of West Bengal, Prof. Shriramchandrudu of Andhra Pradesh, Mr. P.C. Devasia of Kerala, Dr. L.M. Singhvi, MP, and Vaidya Devendra Triguna of Delhi were conferred the *Honoris Causa* degrees at the convocation.

IAU Symposium 199

The National Centre for Radio Astrophysics (NCRA) of the Tata Institute of Fundamental Research proposes to host the IAU Symposium 199 : The Universe at Low

Radio Frequencies at Pune, between November 30 and December 4, 1999. The symposium is sponsored by the International Astronomical Union (IAU) and co-sponsored by the International Union for Radio Science. It will focus on all aspects of radio astronomy at low frequencies (below about 1 GHz), including High redshift HI in emission and absorption; Pulsars, Galactic Sources and the ISM; Extended Extragalactic radio sources; Radio source surveys at low frequencies; and Instruments and techniques for low-frequency radio astronomy.

More details can be had from URL : WWW.ncra.tifr.res.in/~IAU199 or by E-mail from iau199@ncra.tifr.res.in

Refresher Course in Lib. & Inf. Sc.

The Department of Library and Information Science and Academic Staff College, University of Madras recently organised a UGC Refresher Course on "Modern Trends in Library and Information Science". The course was inaugurated by Prof. P.T. Manoharan, Vice-Chancellor, University of Madras.

Dr. K.S. Raghavan, Professor and Head, Department of Library and Information Science in his welcome address explained the fusion of 'Information Technology' in Library and Information Science which has become part and parcel of library profession.

During the 3-week programme lectures were delivered on (i) Library and Information Science Profession : Challenges and Impediments; (ii) Information Profession : A systems approach; (iii) Bibliographic forms with special reference to Databases; (iv) Library and Information Science Research in India : Trends and Develop-

ment; (v) Online Public Access Catalogue (OPAC); (vi) Internet; (vii) Forecasting methods and techniques in Library and Information Science Research; (viii) Information Transfer and Information Services; (ix) Information Management; (x) Bibliometrics, Scientometrics, Informetrics : Evolution of its concept and applications; (xi) Dynamics of Information marketing; (xii) Pricing of Information products and services; (xiii) Information Technology; (xiv) Library Automation; (xv) Systems analysis and design; (xvi) Systems approach to designing of Databases; (xvii) Public Relations in Libraries; (xviii) How to improve your writing skills; (xix) Communication Technology; (xx) Statistics : Its utility and applications; (xci) Total Quality Management; (xcii) Vocational Guidance; (xciii) Library Automation; (xciv) CD-ROM; (xcv) CDS/ISIS; (xcvi) Intellectual property law; (xcvii) Geographic Information System; (xcviii) Multimedia; and (xcix) Impact of Information Technology on Library Personnel.

Participants visited the Indira Gandhi Centre for Atomic Research, Kalpakkam where they saw the OPAC, Multimedia and the specialised services offered by IGCAR. They were also taken to SHAR (Sriharikota) Centre where a video programme was shown explaining the functions of SHAR and computerisation of Library operations.

On Cultivation of Medicinal Plants

A guest lecture on Cultivation of Medicinal Plants with particular reference to production constraints was delivered by Dr. Rajendra Gupta, Ex. Chief Coordinator, Medicinal Plants, ICAR 1998 at Institute of Postgraduate Teaching & Research in Ayurveda

of the Gujarat Ayurved University in Jamnagar recently. Emphasizing the need of cultivation of medicinal plants used in various systems of medicine, Dr. Gupta presented a valuable information on nearly 23 plants.

He highlighted the growing interest and awareness among the people on the use of medicinal plants in India and abroad. He said that in India 34 Universities had taken up teaching programme on medicinal plants whereas 8 Universities had started the Ph.D level studies. Citing the example of foreign countries Dr. Gupta said that in U.S.A. about 40% of people were using plants as a source of drug. Concluding his lecture he said that in India at present Ayurvedic drugs worth of Rs. 800 crores were manufactured by different pharmacies. In this regard he also briefly discussed the export and import of certain drugs.

Hindi Prachar Sabha Convocation

The language of Hindi should fulfil various societal needs and demands, for which its functional aspects should be enriched, said the Lt. Governor of Pondicherry, Dr. Rajani Rai. She was delivering the convocation address of Dakshina Bharat Hindi Prachar Sabha (DBHPS) in Chennai recently. She said it was not just sufficient to propagate the study of Hindi. But, institutions such as Hindi Prachar Sabha should ensure that Hindi, as a medium of communication, met multi-dimensional requirements of the society.

While keeping intact the linguistic specialities, students of the language should give new connotation to words and see to it that Hindi became a reflection of life in its rich sphere.

Commending DBHPS for pro-

moting educational and literary values of Hindi in south India, Dr. Rai recalled how great leaders such as Mahatma Gandhi, Krishnaswamy Iyer, former High Court Judge, and Subramanya Bharati stressed the importance of learning Hindi. Addressing the 1916-17 conference of Indian National Congress, Gandhiji said unless people with Tamil, Telugu, Kannada and Malayalam as their mother tongue studied Hindi, the cultural integration of the country was impossible.

The Lt. Governor honoured four writers of Tamil and Kannada for their contribution to their respective languages. She presented medals and prizes to toppers in various examinations conducted by the Sabha. The former Vice-President, Mr. B.D. Jatti, who is also the Chancellor of DBHPS, (whose address was read out by Mr. G.S. Dharasingh, Vice-Chancellor, in absentia), called upon the students not to overlook the niceties of their own languages while mastering English.

Workshop on Human Rights Education

Anubhav Shiksha Kendra, Pune and NSS Department of Poona College jointly organised a workshop on "Relevance of Human Right Education" to mark the 50th year of the Universal Declaration on Human Rights. Inaugurating the workshop, Dr. S.N. Kotwal, Principal of Poona College, said that the Human Rights Education should be given to the youth, with the basic understanding. Other speakers at the workshop highlighted the relevant provisions of the Universal Declaration of Human Rights. They also held discussions and role play on various articles of Human Rights. It was felt that the youth could force the educators and politicians

to look into the issue of Human Rights as also struggle against their violation.

Russian Delegation Visits Ayurved Varsity

A team of five Medical Experts from Russia recently visited Gujarat Ayurved University, Jamnagar. This visit was arranged for establishing contacts with Indian Officials in the field of Ayurvedic Medicine under Cultural, Scientific and Educational Exchange Programme.

The Russian Scientists were keen to have a close collaboration with the Gujarat Ayurved University to develop Ayurveda in Russia. They had already established an Ayurveda Clinic in their country and were now interested in expanding the Ayurvedic system of Medicine.

Dr. P.N.V. Kurup, Vice Chancellor of the University, welcomed the Russian Medical Experts and offered all kind of support to develop Ayurveda in Russia. He acquainted them with various courses of Ayurveda being conducted by the University exclusively for the foreigners.

The visitors were taken around the Undergraduate and Postgraduate Hospitals where various Panchakarma and Ksharasutra techniques were shown to them. They also visited different depts. and laboratories of the Institute of Postgraduate Teaching & Research in Ayurveda.

M.N. Desai Award in Chemistry

Prof. H.M. Chawla of the Indian Institute of Technology, New Delhi has been chosen for the Prof. M.N. Desai National Award 1998 in Chemistry for his valuable contribution in the field of organic chemistry. The award consists of

Rs. 10,000/- cash with a certificate of citation. Instituted by the Gujarat University, the award will be presented at a function being held on 9th Feb. 1999 at Ahmedabad.

Gandhiji & Human Rights

"Discussing human rights has turned out to be more fashionable with neither the political nor social pattern providing a conducive atmosphere for the individual to realise their rights," observed Dr. N. Radhakrishnan, Director, Gandhi Smriti and Darshan Samiti, New Delhi. He said this at a lecture on 'Human Rights and Responsibilities : A Gandhian Perspective' as part of the Mahatma Gandhi Memorial Lecture organised by the Department of Gandhian Studies and Ramalinga Philosophy, Madurai Kamaraj University (MKU), in Madurai recently.

He said it was most unfortunate that the Gandhian perspective of human rights of providing the much required freedom from fear through emancipation and empowerment, had been ignored.

Pointing out that according to Gandhiji, human beings and human rights were not separate entities since human rights were nothing but to show 'what it is to be a human being.' He also said that Gandhiji's approach to human rights was holistic taking the gambit of life in toto to create a 'global human family.'

He said that Gandhiji had also stressed on the aspect that rights and duties were interrelated and that a person could enjoy his freedom only when he realised his duty. Gandhiji was also keen on providing the much required awareness to liberate oneself and to improve one's capacity to re-

deem oneself from mental bondage to make political, religious and economic freedom possible, he added.

PG Programme in Tourism

The Indira Gandhi National Open University (IGNOU) proposes to launch a Masters in Tourism Studies Programme from January 2000, the Vice-Chancellor, Professor A.W. Khan, announced in New Delhi recently. This programme will be designed and developed in collaboration with different segments of the tourism industry.

About 130 study centres all over the country will be operationalised for this purpose. The thrust of the programme will be to train entry level manpower in the tourist destination zones, and entrepreneurs.

The university already has four programmes for tourism studies. These programmes are providing skills and also contribute to development of responsible tourism by creating awareness of problems faced by the host population and local communities.

As part of National Tourism Week, two orientation programmes were organised on January 23 and 24 by IGNOU at Guwahati and Patna to train counsellors who will guide students doing projects in tourism studies.

Reaching the North-East

Villages in the remotest parts of the north-eastern states and Sikkim, where modern-day education is a far cry, may soon emerge from the throes of ignorance and experience the power of knowledge.

An ambitious project to take education to the doorsteps of the under-privileged is reported to have been initiated jointly by the

Indira Gandhi National Open University (IGNOU) and the National Council of Educational Research and Training (NCERT).

The "distant education" project, envisaging spread of education through video-conferencing, will help students of these areas take lessons without having to travel much. "Lessons" could be beamed from IGNOU-NCERT combine's headquarters in Delhi and received at the various centres in these areas from where students can get their doubts cleared through hotline connections to the headquarters.

Disclosing this in New Delhi IGNOU Vice-Chancellor Prof. Abdul Khan said: "IGNOU has the second-largest education network in the world and has launched the most sophisticated teaching methods in distance education taking full advantage of the country's fast expanding information technology (IT) sector."

Prof. Khan said: "We have the best educationists in every faculty for imparting distance education to over 5,00,000 students both within the country and abroad."

IGNOU is the fastest growing

educational network in the world imparting distance education to 58 countries around the globe. NCERT director Dr. A.K. Sharma said with information technology making it possible, the IGNOU-NCERT combine will also offer training to teachers. Teachers would be trained through a high-tech online "intranet" connectivity system.

A two-day seminar held in Gangtok recently outlined the "expertise" being offered by the combine to the participating states including Assam, Arunachal Pradesh, Mizoram, Manipur, Meghalaya, Nagaland, Tripura, Sikkim and West Bengal.

Dr. Sharma said: "Besides teachers' training, the council concentrates on assisting and advising the ministries of education and culture in implementing policies and major programmes in the field of education, particularly school education."

The course material provided would be the latest state-of-the-art audio-visual aids with "online" training through "intranet, internet and video conferencing", Dr. Sharma said.

News from UGC

Countrywide Classroom Programme

Between 8th and 14th February, 1999 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programmes are telecast on the Doordarshan's National Network from 9.30 to 10.00 a.m. every day except on Saturdays & Sundays. These programmes are also telecast on Doordarshan's National

Network from 6.00 to 6.30 a.m. two days a week i.e. on Saturdays and Sundays. On DD2 International Programme will be shown at 11.00 to 12.00 hours on Saturdays only.

Hindi Programmes are being telecast on Mondays to Fridays from 6.00 to 6.30 a.m.

8.2.99

"Insight Foresight"
"Touch of Genius"

9.2.99

"Disha-6"

10.2.99

"In Search of Cat's Tail"

11.2.99

"Question Time-100"

"Grainage— The Heart of Silk"

12.2.99

"Traiblazing : A Joint Services
Wind Surfing Expedition"

13.2.99

"Future of Humanities &
Social Sciences"

"International Programmes"

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"Blackholes & Gravitational
Waves"

Hindi Telecast

प्रातः 6.00 से 6.30 बजे तक

8.2.99

"प्लॉट फॉसिल-1"

9.2.99

"शांत शोला"

"संकरित गाय : स्वरोजगार का
साधन"

10.2.99

"दोलन गति : युग्मित दोलन तथा
विस्पन्द"

"काष्ठान्न"

11.2.99

"वंदेमातरम् : राजगुरु और सहदेव"
"अनिमिया"

12.2.99

"राग एक चर्चा-2"

News from Abroad

Task Force on Teacher Education

A new task force on teacher education, established by the American Council on Education (ACE) in cooperation with other higher education associations, recently met in Washington, D.C. to

explore ways to improve teacher education programs in the United States. U.S. Secretary of Education Richard W. Riley, who joined the group for its opening discussion, stressed the "sense of

PANJAB UNIVERSITY, CHANDIGARH

COMMON ENTRANCE TEST (C.E.T.)

FOR ADMISSION TO B.E./ B.ARCH./ B.E. (CHEMICAL)/ M.B.B.S./
B.A.M.S./ B.H.M.S./ B.PHARMACY/ B.Sc. (Hons. Sch.) COURSES

SESSION 1999-2000

The University will hold a Common Entrance Test for the following Courses on May 22 and 23, 1999.

1. PUNJAB ENGINEERING COLLEGE, CHANDIGARH

Bachelor of Engineering (Aeronautical, Civil, Computer Science and Engineering, Electrical, Electronics & Elect Communication, Mechanical, Metallurgical and Production)

2. CHANDIGARH COLLEGE OF ARCHITECTURE, CHANDIGARH

Bachelor of Architecture.

3. DEPARTMENT OF CHEMICAL ENGINEERING & TECHNOLOGY

Panjab University - B.E. (Chemical)

4. GOVERNMENT MEDICAL COLLEGE, CHANDIGARH - M.B.B.S.

The test shall be open to all such candidates as :

- attain the age of 17 years on or before December 31 of the year of admission;
- have passed both +1 (11th Class) and +2 (12th Class) examinations from Schools/ Colleges recognised by the Chandigarh Administration and situated in the UT of Chandigarh, as regular students of the said Schools/ Colleges with 50% marks in the aggregate of Physics, Chemistry, Biology and English at +2 level in FIRST ATTEMPT. However, in the case of members of the Scheduled Castes, relaxation in marks not exceeding 10% shall be allowed.
- are due to appear in +2 (12th Class) examination in March 1999, but their admission to the test shall be provisional, which shall stand cancelled, if they fail to pass qualifying examination, securing the prescribed percentage of marks. Such candidates will not have any claim, whatsoever, with regard to their admission to the said course. Other eligibility conditions remain the same as in (b) above;

6. SHRI DHANWANTRY AYURVEDIC COLLEGE, CHANDIGARH - B.A.M.S.

6. HOMEOPATHIC MEDICAL COLLEGE, CHANDIGARH - B.H.M.S.

7. UNIVERSITY INSTITUTE / TEACHING DEPARTMENTS

Offering the following Courses :

- University Institute of Pharmaceutical Sciences : B.Pharmacy
- Teaching Departments :
B.Sc. (Hons. School) in Anthropology, Biochemistry, Bio-Physics, Botany, Chemistry, Geology, Mathematics, Microbiology, Physics and Zoology.

FOR DETAILED INFORMATION REGARDING MINIMUM QUALIFICATIONS/ ELIGIBILITY CONDITION(S)/ DATE SHEET/ RULES/ REGULATIONS/ INSTRUCTIONS/ PRESCRIBED FEE FOR THE COURSE(S)/ SUBJECT(S)/ COMBINATION OF SUBJECTS/ SYLLABUS/ SAMPLE QUESTIONS ETC. FOR THE ABOVE MENTIONED COURSES (1-7), THE CANDIDATES ARE ADVISED TO CONSULT THE PROSPECTUS FOR C.E.T. - 1999.

CENTRES FOR THE COMMON ENTRANCE TEST :

CHANDIGARH, DELHI, KURUKSHETRA & LUDHIANA

AVAILABILITY OF PROSPECTUS AND APPLICATION FORMS

The Prospectus (including application form) will be made available for sale from Monday Feb.08, 1999 and can be had, on payment of Rs.120/- in cash, from any one of the following sources;

- The Cashier, Panjab University, Chandigarh
- The Chairman, VVBIS & IS, Sadhu Ashram, Hoshiarpur
- The Librarian, Panjab University Extension Library, Civil Lines, Ludhiana
- The Director, Panjab University Regional Centre, Muktesar
- Request for application form by post may be addressed to the Manager, Publication Bureau, Panjab University, Chandigarh by enclosing self addressed envelope (30x25 cms) by registered book-post on remitting Rs.150/- only through Crossed A/c Payee Bank Draft drawn in favour of the Registrar, Panjab University, Chandigarh (payable at Chandigarh). No request for supply of prospectus including application form by post shall be entertained, if it is received in the University office after Monday, March 1, 1999.

THE LAST DATE FOR RECEIPT OF APPLICATION FORMS complete in all respects either by hand or by post in the office of Assistant Registrar (CET Cell) is Monday March 22, 1999 (upto 5.00 p.m.). Application forms, incomplete in any manner, or not accompanied by University cash receipt/bank draft and those received after 5.00 p.m. on 22-3-99 shall not be entertained under any circumstances, whatsoever, regardless of the fact whether the application is sent by post or through courier or by any other means. Ref. No. to such applicants shall not be issued and no correspondence, whatsoever, in this connection shall be made or entertained by the University. The Panjab University does not take any responsibility for any postal delay or delay in delivery by courier or by any other means or for loss in transit of the APPLICATION FORM. Sd/-

Controller of Examinations

urgency" he attached to its deliberations.

Chaired by Ted Sanders, President of Southern Illinois University Carbondale, the task force is composed of 35 college and university presidents, heads of higher education associations, chief academic officers, deans, and representatives from school systems.

"Our goal is to provide a visible national presence for advocacy of promising steps that can be taken to improve the quality of teachers entering the nation's schools," Sanders said.

One of the principal goals of the task force is to ensure that the issue of quality teacher education programs is high on the agenda of college presidents. In appointing members of the task force, ACE President Stanley O. Ikenberry noted that "while many colleges and universities have devoted a

great deal of effort and attention to these issues, college and university presidents have not been seen by others in society as engaged—nor have we spoken with as clear a voice—as our colleagues in other sectors."

Ikenberry noted that lawmakers have expressed concern about teacher training programs and have debated measures to raise standards. For example, the legislation reauthorizing the Higher Education Act, which was approved by lawmakers earlier this year, includes three separate grant programs focusing on improving teacher quality and the recruitment of highly qualified teachers.

During the task force's first meeting, members discussed the roles and responsibilities of colleges and universities in the preparation of teachers and explored a number of proposals that the

higher education community could undertake to strengthen and improve existing teacher education programs.

The issues the task force will explore include evidence regarding the current quality of teachers being prepared; the various mechanisms for quality control at the institutional, state, and professional levels; the tension between the need for an increased number of teachers and the need for increased quality of teachers; the adequacy of subject preparation in the fields in which teachers teach; and the level of engagement between colleges and universities and the nation's K-12 schools.

The panel plans to deliver a national report to college and university presidents and policymakers outlining the problems that exist and recommending steps to strengthen teacher preparation.



॥ अंतरी पेटवू ज्ञानज्योत ॥

North Maharashtra University

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Applications are invited for various teaching posts as under :

Sr. No.	Name of the School/Dept.	Specialization	No. of Posts
PROFESSORS (06) : Scale Rs. 4500-7300 (Total emoluments Rs. 13,105/- approx) (unrevised)			
1.	Chemical Sciences	Polymer Chemistry	01
2.	Physical Sciences	Physical/Electronics	01
3.	Mathematical Sciences	Mathematics/Statistics	01
4.	Chemical Technology	Chemical Engg./Plastics/Paints/Oil & Food Technology	01
5.	Management Studies	HRD/Marketing Management	01
6.	Computer Science	Computer Science/Computer Applications	01
READERS (04) : Scale Rs. 3700-5700 (Total emoluments Rs. 11,310/- approx) (unrevised)			
7.	Mathematical Science	Mathematics/Statistics	01 (NT) (6)
8.	Computer Science	Computer Science/Computer Applications	01 (ST) (6)
9.	Management Studies	Marketing/Financial Management	01 (SC) (6)
10.	Life Sciences	Biotechnology (VIII Plan post likely to be continued)	01 (SC) (4)
LECTURER (01) : Scale Rs. 2200-4000 (Total emoluments Rs. 7,426/- approx) (unrevised)			
11.	Physical Sciences	Electronics/Energy Studies	01 (SC) (6)

Details regarding qualifications, experience, age, procedure of application etc. shall be supplied on a written request, mentioning the name of the post to be applied for, alongwith a D.D. Rs. 200/- or Rs. 100/- for B.C. in favour of Registrar, North Maharashtra University, Jalgaon, with a self-addressed envelope affixing stamp of Rs. 24/- OR by cash payment in the university office during working days on or before 27/2/99.

The last date for submitting duly completed application in TEN copies is 27/3/99.

Place : Jalgaon

Date : 19/1/99

Dr. S.N. Desai
REGISTRAR

BOOK REVIEW

A Perfect Book for Desk Reference

Suresh Kumar Lau*

Shanthi K. Arumugam, Hockey Year Book 1998. Read and Write F-128/11 Mohammad Pur, New Delhi-110 066, Pp. 196. Rs. 495/-.

With the expansion of sports activity in the country, there has been a growth in its literature too, but a majority of it has been on popular disciplines like cricket. There is a welcome change now in the form of a book entitled *Hockey Year Book 1998* written by Shanthi K. Arumugam, a freelance Sports journalist who has done a great job to the game of Hockey.

The book contains valuable information and reviews of various national and international hockey tournaments. It contains information on coaches, records, the balance sheet of IHF and reviews of tournaments like Olympic qualifier 1996, Atlanta Olympics, Test matches, Sultan Azlan Shah Cup, Champions Trophy, Women Hockey, Junior Asian Cup and Domestic hockey. The book is on the model of Indian Cricket Annual and ACSSI Cricket year book. It contains a wealth of statistics on what happened in hockey in 1986-97; the compiler has made painstaking effort and that too in a sincere manner.

A concise preface has been contributed by Sayid Hamid, former Vice-Chancellor of Aligarh Muslim University. He refers to "the positive correlation between mismanagement and decline of

hockey standards as evidenced by two events that marred India's participation in the Champions Trophy at Madras, where India got a five to nil drubbing at the hands of Germany." To make matters worse, the treasurer of the IHF was bashed up, in full public view, by a section loyal to the another functionary of Indian Hockey Federation. This public disgrace indicates the level to which Indian hockey has sunk. The complexity of human nature can be judged from the fact that K.P.S. Gill, who as Police Chief of Punjab, struck terror in the hearts of the terrorists, could not in the ratifying atmosphere of IHF, say no to anybody nor bring to book violators of norms and probity.

A very useful book for hockey followers, but the author has conveniently ignored the Indian universities' records. University players played a major role in making India a world power in hockey. Among the notable university players are such stalwarts like Zafar Iqbal, Ajit Pal Singh, V.

Bhaskarn, Paragat Singh, Lal Shah Bokhari — all of them having captained the Indian National team at one point or another. Punjab took to hockey in a big way, and from the army units it spread to educational institutions, and hockey has been included in the Punjab University Sports Tournament since 1903.

The bane of Indian sport has been the lack of proper attention to university level competitions. Although Government College, Lahore was institution of repute, player like Keshav Dutt, Amir Kumar, Cdr. Nandy Singh, Mohammed Jaffer and Lal Shah Bokhari brought laurels to this institution. Government College, Lahore also contributed 3 players to India's team in 1948 Olympics and there were 4 in Pakistan team.

An indispensable book of immense value, it provides a fund of information. No hockey writer can afford to miss this annual which is a ready reckoner. Strongly recommended for school and college libraries and to those who love to participate in hockey quiz programmes. Presentation is lucid, language simple and information rich. The Kuber Group have done well to Sponsor this book. The Group has been doing yeoman service to Indian hockey with many grants and sponsorships.

TO OUR READERS

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communication should, however, be brief and to the point.

*Lecturer in Physical Education,
Satyawati Co-educational College
(Evening), University of Delhi,
Delhi-110 052.

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities (October-November 1998)

SOCIAL SCIENCES

Anthropology

1. De, Purnima. The socio economic life of lepers in North Chhotanagpur: Study of their problems and rehabilitation and welfare. (Dr R K Prasad), Department of Anthropology, Vinoba Bhave University, Hazaribag.
2. Dowarah, Tara Nath. Socio-cultural contributions of the Ahoms in the formation of the Assamese nationality in Assam: A study in anthropo-historical perspective. (Prof K C Mahanta), Department of Anthropology, Dibrugarh University, Dibrugarh.

Commerce

1. Chakraborti, Udas. A study of the performance of Eastern Coalfield Limited, ECL since the nationalisation of coal industry in 1973. (Sri Jaydeb Sarkhel), Department of Commerce, University of Burdwan, Burdwan.
2. Hagargi, S B. Rationalisation of personal taxation: A study of tax on salary income. (Dr Basavaraj C S), Department of Commerce, Gulbarga University, Gulbarga.
3. Joshi, Sanjay Devidas. Sonal Patambdhare prakalpa takul Malegaon Jilha Akola chya sandarbhat gramini bhagat Ghadlelya arthik va samajik badalanacha abhyas. (Dr Jayant Welankar), Department of Commerce, Nagpur University, Nagpur.
4. Krishnamurthy, M G. Impact of cost and pricing policies on profits : A case study of paper industry in Karnataka. (Dr J Madegowda), Department of Commerce, Kuvempu University, Shimoga.
5. Pathak, Harshal Dattuprasad. India's monetary experience : The economics of stability, 1970-95. Department of Commerce, Maharaja Sayajirao University of Baroda, Vadodara.
6. Roy, Shambhu. Wage structure of sugar industry: A case study of Bihar. (Dr K N Jha), Department of Commerce, B R Ambedkar Bihar University, Muzaffarpur.
7. Shakeel Ahmad. Human resource development in the University system : A comparative study of non teaching staff of University of Delhi and Jamia Millia Islamia. (Dr M A Khan), Department of Commerce, Jamia Millia Islamia, New Delhi.
8. Sharma, Onkar. Worker's participation in management in cooperative sugar industry. (Dr Mohd Mustafa), Department of Commerce, Jamia Millia Islamia, New Delhi.
9. Singha Shah, Seema. Working conditions of the women labourers in the tea garden industry of Assam: A case study of Dibrugarh District. (Prof H Goswami), Department of Commerce, Dibrugarh University, Dibrugarh.
10. Subhash, K B. A study on the significance of venture capital and entrepreneurial development in South India. (Dr T Govindankutty Nair), Department of Commerce, University of Calicut, Calicut.

Economics

1. Bansode, Ashok. Socio-economic conditions of industrial labour in small scale industries: A case study of Hyderabad, Karnataka area. (Dr B Siddappa), Department of Economics, Gulbarga University, Gulbarga.
2. Borah, Hari Prasad. Production and marketing of veg-

etables in Nagaon District of Assam. (Dr D R Kalita and Prof K C Borah), Department of Economics, Dibrugarh University, Dibrugarh.

3. Deb, Madhumita. Women workers in urban organised sectors of Tinsukia District of Assam: A multidimensional study. (Dr N K Dey), Department of Economics, Dibrugarh University, Dibrugarh.
4. Dundu, Narendra Kumar. Human resource development and educational planning in Madhya Pradesh. (Dr S C Srivastava), Department of Economics, Guru Ghasidas University, Bilaspur.
5. Elijah, Charles Munene. The evaluation of Structural Adjustment Facility, SAF Programs to Kenya. (Prof Anwer R Rizvi), Department of Economics, Jamia Millia Islamia, New Delhi.
6. Goswami, Santanu. Determinants of fertility and infant mortality of the tea-garden labourers of Assam: A case study of the Dibrugarh District. (Prof H Goswami), Department of Economics, Dibrugarh University, Dibrugarh.
7. Hedge, Ishwar Venkatraman. Foreign trade in India's economic growth : A quantitative analysis. (Dr H D Manjappa), Department of Economics, Karnatak University, Dharwad.
8. Hussein Mohamed Nur. International trade organizations and the Third World countries: The case of UNCTAD, 1964-1993. (Prof A R Rizvi), Department of Economics, Jamia Millia Islamia, New Delhi.
9. Konwar, Jaishree. Tribal population of Assam: An inter temporal analysis, 1951-1991. (Prof J K Gogoi), Department of Economics, Dibrugarh University, Dibrugarh.
10. Moulvi, Mehboob-Pasha. Impact of social security cum-labour welfare measures on production absenteeism and attitudes of the industrial workers: A comparative study of K S R T C regional workshops of Hubli and Bangalore. (Dr N G Chachadi), Department of Economics, Karnatak University, Dharwad.
11. Regulagadda, Vijay. Peasant migration and land market: A study of a command area. (Prof D Narasimha Reddy), Department of Economics, University of Hyderabad, Hyderabad.
12. Saikia, Kamalendu. A critical evaluation of the implementation of the Assam Temporarily Settled Areas Tenancy Act of 1971. (Dr A Goswami), Department of Economics, Dibrugarh University, Dibrugarh.
13. Sudhakar, Girijupalli. Production and marketing of turmeric in Andhra Pradesh economy. (Dr M Y Kapde), Department of Economics, Devi Ahilya Vishwavidyalaya, Indore.
14. Upadhyay, Vandana. Hydrocarbon resources of Assam: Their role in state's socio-economic development. (Prof Atul Goswami), Department of Economics, Dibrugarh University, Dibrugarh.
15. Venkata Vijaya Gouri, A. Trends and structure wages in India : Inter industry and inter state analysis. (Dr A V V S K Rao and Prof R K Misra), Department of Economics, Osmania University, Hyderabad.

Education

1. Chandra, Vallury. A study of distortion of Indian cul-

ture by Television and its effects on urban school going children. (Prof S P Ruhela), Department of Education, Jamia Millia Islamia, New Delhi.

2. Dutta, Subhasree. An investigation into modification of teacher behaviour of upper primary Science teachers through verbal interaction : Analysis feedback and its effect on scholastic achievement of pupils studying in grade VII of South Delhi schools. (Prof Devendra Joshi and Prof N K Jangira), Department of Education, Jamia Millia Islamia, New Delhi.

3. Hazarika, Mukut. Scholastic achievement of students of secondary schools under different types of management. (Dr K K Deka), Department of Education, Dibrugarh University, Dibrugarh.

4. Jacob, Jessy. A study of peer counselling for evolving a strategy to train peer counsellors in the teacher training colleges in Delhi. (Dr Najma Amin and Dr Asha Bhatnagar), Department of Foundations of Education, Jamia Millia Islamia, New Delhi.

5. Johri, Sanju. An investigation into alternative techniques of facilitation of coordination and ordination concepts of numbers among pre-school and grade-I primary school children. (Prof D Joshi), Department of Education, Jamia Millia Islamia, New Delhi.

6. Joseph, Kacharayil. An analytical study of some causes leading to educational backwardness of scheduled caste and scheduled tribe pupils. (Dr P Kelu), Department of Education, University of Calicut, Calicut.

7. Khan, Intakhab Alam. A study of relevance of modern management techniques in educational institutions. (Prof Mohd Miyan and Dr Sudha Rao), Department of Education, Jamia Millia Islamia, New Delhi.

8. Seema Veena. A comparative study of information processing strategies adopted VII grade pupils taught through traditional method and through concept attainment model in acquiring Science concepts. (Prof Talat Aziz and Dr B Phala Chandra), Department of Education, Jamia Millia Islamia, New Delhi.

Home Science

1. Khanna, Sangeeta. Development of tempe based products and the impact of iron enriched tempe burfi in the control of anaemia. (Dr M P Vaidehi), Department of Home Science, Bangalore University, Bangalore.

2. Muthayya, Sumithra. Maternal energy requirements and nutritional status in well nourished pregnant and lactating women. (Dr Nirmala Rao and Dr P S Shetty), Department of Home Science, Bangalore University, Bangalore.

3. Rakasi, Kalpana. A psycho-social study of child labour of Hyderabad. (Dr D S Janbandhu), Department of Home Science, Nagpur University, Nagpur.

Law

1. Arul, K. Criminal justice system in Pondicherry: A comparative critical study of the past and present. (Dr K N Chandrasekharan Pillai), Department of Law, Cochin University of Science and Technology, Kochi.

2. Mohammad Momin. Matrimonial remedies available to a wife under the existing family laws in India: A comparative analysis. (Prof Haris Ch Ghosh, Prof Md Shabbir and Dr Baidyanath Chaudhuri), Department of Law, University of Burdwan, Burdwan.

Management

1. Desai, Sanjay Rameshchandra. Competitive dynamics: An empirical analysis of large pharmaceutical companies in In-

dia. Department of Management Studies, Maharaja Sayajirao University of Baroda, Vadodara.

2. Joy, K J. Personal finance of gazetted officers in Kerala. (Dr P R Wilson), Department of Management Studies, Cochin University of Science and Technology, Kochi.

3. Sapre, Anand Kumar. Marketing of services of travel agencies in Indian tourism industry. (Dr D Kaul), Department of Management, Devi Ahilya Vishwavidyalaya, Indore.

4. Subbaiah, S. Performance of medium sized companies in India : A descriptive and diagnostic study. (Prof E G Parameshwaran), Department of Business Management, Osmania University, Hyderabad.

Political Science

1. Darbari, Anurag Kumar. Politics of communal articulation and organisation in India since 1971. (Prof Z M Khan), Department of Political Sciences, Jamia Millia Islamia, New Delhi.

2. Iftikhar, Pumma. Muslim women and their participation in public life : A case study of UP. (Prof Z A Nizami), Department of Political Science, Jamia Millia Islamia, New Delhi.

3. Jana, Arun Kanti. The CPI (M) jute workers in West Bengal : A study in mobilisation, 1972-92. (Prof Kiran Saxena), Centre for Political Studies, Jawaharlal Nehru University, New Delhi.

4. Jena, Manmath Chandra. US human rights policy and strategic geo-political considerations vis-a-vis India and Pakistan from Carter to Clinton administrations. (Prof Christopher S Raj), Centre for American and West European Studies, Jawaharlal Nehru University, New Delhi.

5. Lalitha, K. Political discourses of social reform and the nationalist movement in Andhra: Implications for the women's question. (Dr Rama Melkote), Department of Political Science, Osmania University, Hyderabad.

6. Mallick, Md Ayub. Congress(I) in opposition during the first two left front governments in West Bengal. (Dr Nimaichand Pramanik), Department of Political Science, University of Burdwan, Burdwan.

7. Rupavath, Ramdas. Pattern of socio-economic development, tribal land alienation and political movement in Adilabad and Khammam districts in Andhra Pradesh. (Dr Sudha Pai), Centre for Political Studies, Jawaharlal Nehru University, New Delhi.

8. Sharma, R S. Evolution of national security planning in India after independence. (Prof Kousar J Azam), Department of Political Science, Osmania University, Hyderabad.

9. Shrivastava, Anusha. UN and economic sanctions: A case study of Iraq. (Dr Amitabh Mattoo), Centre for International Politics, Organization and Disarmament, Jawaharlal Nehru University, New Delhi.

10. Singh, Pawan Kumar. Tuldidas ke Ramcharit Manas mein rajnitik drishti kee khoj. (Dr S K Narayan), Department of Political Science, Vinoba Bhave University, Hazaribag.

11. Singh, Usha. Administrative relations between the union and the states in India, 1967-92. (Dr D L Srivastava), Department of Political Science, Vinoba Bhave University, Hazaribag.

12. Tigiripalli, Krishna Kanth. US Soviet relations with reference to Nicaraguan Revolution. (Dr K Bhaskaramma), Department of Political Science, Kakatiya University, Warangal.

13. Venkateswarlu, Davuluri. Changing agrarian structure and relations: Study of a village in Guntur District, 1950-91. (Prof Shanta Sinha), Department of Political Science, University of Hyderabad, Hyderabad.

Psychology

1. Mirakhur, Deepika. Life goals and world view of high and low creative male and female students. (Dr K B Kumari and Prof Mohd Mian), Department of Psychology, Jamia Millia Islamia, New Delhi.

2. Sharma, Mahendra Prakash. Behavioural intervention with the aged. (Dr H Mishra), Department of Clinical Psychology, National Institute of Mental Health and Neuro Sciences, Bangalore.

3. Sharma, Sangeeta. Impact of environmental stress on mental health, coping mechanisms and environmental perception in three metropolitan cities. (Prof M G Husain), Department of Psychology, Jamia Millia Islamia, New Delhi.

4. Sitamma, M. Three gunas, cognitive characteristics and self-actualization. Department of Psychology, Andhra University, Waltair.

5. Suniti. Effect of child rearing practices on intelligence, creativity and personality. (Dr K Bharathi Kumari), Department of Psychology, Jamia Millia Islamia, New Delhi.

6. Venumohan Reddy, V. Nutritional status and its effect on cognitive development. (Prof K Ramachandra Reddy), Department of Psychology, Osmania University, Hyderabad.

Public Administration

1. Raja Mohan, S. Environment and administration: A study of administrative response to environmental pollution in Warangal District. (Prof G Sreenivas Reddy), Department of Public Administration, Kakatiya University, Warangal.

2. Venkata Rao, J. Municipal Government and politics in

Andhra Pradesh : A study of Guntur Municipality. (Dr E A Narayana), Department of Public Administration, Nagarjuna University, Nagarjunanagar.

Social Work

1. Antoni Yesdoes I. Pathology in the families of rural alcoholics. (Dr Vasanthi Vijay), Department of Social Work, Bangalore University, Bangalore.

2. Harvinder Kaur. Social problem of women leprosy patients: A study of Delhi. (Dr Anjali Gandhi), Department of Social Work, Jamia Millia Islamia, New Delhi.

3. Patel, Hella Chandrakant. Determinants of intra-house allocation of resources in Baroda slum. (Prof M Z Khan), Department of Social Work, Jamia Millia Islamia, New Delhi.

Sociology

1. Anjanappa, B.H. Hatthi Hinjuva karkhanegalalli mahila karmikara : Samajika, arthika sthithigathigalu: Davanagere nagarada, ondu adhyayana. (Dr A Ramegowda), Department of Sociology, Kuvempu University, Shimoga.

2. Doddamani, Devanand Thavarappa. Social life and institutions among Lambanis. (Dr B H Amati), Department of Sociology, Karnatak University, Dharwad.

3. Dutta, Arunima. Delinquent girls: A sociological study in the context of Assam. (Prof D Doley), Department of Sociology, Dibrugarh University, Dibrugarh.

4. Sudha, D.K. Women's education and employment in relation to the acceptance of changing gender role expectations and small family norm in urban Karnataka. (Prof V N Bhat), Department of Sociology, Kuvempu University, Shimoga.



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(A Govt. of India Society Under Ministry of HRD)

ADMISSION NOTIFICATION - 1999

NIFFT was established by the Govt. of India in collaboration with UNDP-UNESCO in 1985 and is administered through a duly constituted Board of Governors representing Industries, Education & Research Institutions, Ministry of Human Resource Development, Ministry of Industry and AICTE, New Delhi.

B.TECH

-in Manufacturing Engg.
-in Metallurgy & Materials Engg.
-4 Years Degree Course (Ranchi University)

ELIGIBILITY :

10+2 Stage of 10+2+3 System Or equivalent with Physics, Chemistry, Mathematics and English.
Maximum Age Limit : 21 years as on 1.10.99 (Relaxable by 5 years for SC/ST)

APPLICATION FEE :

Rs. 400/- (General)
Rs. 160/- (For SC/ST)

APPLICATION FORM & INFORMATION BROCHURE :

Forms and other details may be obtained from the Chairman, Academic Affairs, NIFFT, RANCHI-834003 on payment of requisite fee (indicating name of the course) by crossed Demand Draft drawn on any Nationalised Bank payable to "NATIONAL INSTITUTE OF FOUNDRY & FORGE TECHNOLOGY" at Ranchi, alongwith a self addressed envelope of size 28x16 cm stamped for Rs. 12/- only. The Institute will not be responsible for any postal delay/loss.

LAST DATES :

(a) For B.Tech./Advanced Diploma Courses :

Issue of Application forms by post
Issue of Application forms from Institute Counter by hand (10 A.M. to 4 P.M. through D/D)
Receipt of completed application forms

(b) For M.Tech. Courses :

Receipt of completed Application forms

ADVANCED DIPLOMA COURSE

-in Foundry Technology
-in Forge Technology
-18 months duration.

ELIGIBILITY :

Passed diploma in Met./Mech./Prod. Engg. conducted by State Board of Technical Education OR B.Sc. with Physics, Chemistry & Math.

APPLICATION FEE :

Rs. 200/- (General)
Rs. 80/- (For SC/ST)

M.TECH

-in Foundry-Forge Tech.
-in Manufacturing Engg.
-3 semester P.G. Degree Course (Ranchi University)

ELIGIBILITY :

Bachelor's degree in Mech./Met./Prod. Engg. or equivalent for M.Tech. (FFT) & valid GATE score.
-Bachelor's degree in Mech./Met./Manufacturing/Prod./Elect./Aeron./Chemical/Ind. Engg. and valid Gate score. Sponsored candidates with 55% marks in qualifying exam. above may also be considered (without Gate score) if they possess 2 years experience. Preference will be given to Gate score holder.

APPLICATION FEE :

Rs. 250/- (General)
Rs. 100/- (For SC/ST)

Mar 12, 1999

Mar 18, 1999

Mar 20, 1999

June 05, 1999



Admission to

2 year Post-Graduate Diploma course in Business Management with an opportunity to pursue the Diploma in Computer Applications course.

INDIAN INSTITUTE OF SCIENCE & MANAGEMENT

(Recognised & Aided by AICTE, Ministry of H.R.D., Govt. of India)

(भारतीय विज्ञान एवं प्रबंधन संस्थान)

IISM CAMPUS, PUNDAG, RANCHI-834 004

Phone :-0651-304393, 0651-302060, Fax :-0651-314630

IISM, Ranchi was established in 1985 and the Management Development Building equipped with all the teaching facilities was inaugurated on 10th November, 1998 by Hon'ble Finance Minister, Govt. of India and with this building institute renews its commitments to high quality management education and March towards 21st Century.

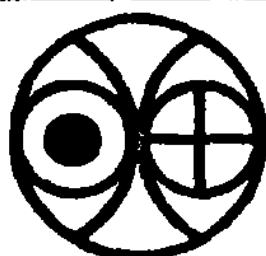
Eligibility : Graduates in Science/Arts/Commerce/Engg/Agriculture/Medicines. Appearing candidates can also apply.

Selection : Through the written test of MAT conducted by All India Management Association-New Delhi on 16th May, 1999 followed by group discussion and personnel interview.

Application Form & Prospectus : Available at the institute on payment of Rs. 300/- at the counter or Demand Draft of Rs. 350/- in favour of IISM, Ranchi.

Candidates should also apply to All India Management Association, Management House, 14 Institutional Area, Lodhi Road, New Delhi-110 003 for MAT examination form.

Last Date : For Institute Form : 20th April, 1999.



Physical Research Laboratory

P.O. Box No. 4218, Navrangpura

Ahmedabad 380 009

(Advt. No. 1/99)

Doctoral and Post-Doctoral Research Opportunities

Physical Research Laboratory (PRL), Ahmedabad offers excellent research opportunities in various areas of Physical and Earth Sciences and Solar System Studies as outlined below:

a. RESEARCH SCHOLARSHIP (Ph.D.) PROGRAMME (Earth Sciences and Solar System Studies) :

Eligibility First or High Second Class M.Sc. in Physics/Chemistry (Physical, Analytical, Nuclear & Environmental)/Geology/Geophysics/Hydrology/Oceanography and Marine Sciences. Physics and Mathematics essential at B.Sc. level. Those appearing for M.Sc. (Final) this year may also apply. **Scholarship:** Rs. 5500/- p.m. and a book allowance of Rs. 5000/- per year for four years.

b. POST DOCTORAL FELLOWSHIP PROGRAMME (Physical and Earth Sciences and Solar System Studies): **Eligibility:** Young scientists (preferably less than 35 years) with Ph.D. degree in Physics, Chemistry (Physical, Analytical, Nuclear & Environmental) or any branch of Earth Sciences. Those who have submitted their Ph.D. thesis may also apply. **Stipend:** Rs. 8500/- p.m. (Rs. 9000/- p.m. with Ph.D. Degree) plus House Rent as per Government of India rules.

For details on research activities of the Laboratory see our homepage on the Website address <http://www.prl.ernet.in>. Application forms for both the positions (a and b) can be downloaded from the homepage or may be obtained from the Administrative Officer-I at the address mentioned above. **Last date for receiving the duly completed application forms for both the categories is April 15, 1999.**

UGC Schemes

A Manual for Universities, Colleges and Research Institutions

Sitaram Sharma

Education is a must for national planning and the University Grants Commission has an important role ensuring the quality and relevance of higher education in the country.

The aim of this manual is to provide information about the UGC — its structure and functions in educational development by extending infrastructural facilities and providing the necessary finance and implementation of development programmes.

This book provides information about college grants, research projects, research fellowships both Junior and Senior, grants to Scheduled Castes and Scheduled Tribes and Women's education being sponsored by the UGC.

Information of the Ninth Plan has been included to make the subject matter up-to-date.

This manual highlights various schemes/programmes of the UGC for all eligible Central Universities, State Universities and Deemed Universities and Colleges for their development programmes for improving the standard of higher education in the country.

The book should prove useful to Principals, University and College teachers, Librarians, research scholars and Educational administrators as a ready reference.

1998
ISBN 81-7594-024-7

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Hardback

xii + 607
Rs. 1150.00

Available at : M/s. Shyam Book Distributors,
A-312, Indra Verna Colony
Nahari Ka Naka,
Shastri Nagar
Post Box No. 8,
Jaipur-302 016 (Raj.) Ph : 0141-304921



ADMISSION NOTICE

YOGA EDUCATION COURSES

KAIVALYADHAMA SHREEMAN MADHAVA YOGA MANDIR SAMITI'S

G.S. COLLEGE OF YOGA AND CULTURAL SYNTHESIS,

P.O. Kaivalyadhama, Lonavla : 410 403 (Maharashtra)

PHONE : (02114)73001/73039. FAX : (02114) 71983

(Established in 1950)

Admission OPEN to :

***Diploma in Yoga Education (Nine Months Duration)**

(Starts from 16th August every year)

Minimum Qualification : II-Class 45% in Graduation of any faculty of any University recognised by U.G.C.

Age : Not more than 30 years.

Last Date of application : 30th June

***Certificate Course in Yoga (Six Weeks Duration)**

(Starts from 2nd May every year)

Minimum Qualification : 10th Std. (S.S.C.) Passed

Age : Not more than 35 years.

Last Date of application : 31st March

Send Rs. 30/- (for each course) by D.D. only on SBI/Canara Bank, payable at Lonavla for a copy of Prospectus cum Admission form.

— PRINCIPAL

CLASSIFIED ADVERTISEMENTS

PUNJABI UNIVERSITY PATIALA

Advt. No. 219/PRO/Rect./99

Applications on prescribed forms are invited for the following posts so as to reach the Deputy Registrar (Establishment), Punjabi University, Patiala-147 002 by 25-2-1999 :

1. **Lecturers :** Law-2, Commerce-2, Fine Arts-1, Chemistry-2, Computer Science & Engineering-4, Psychology (CC)-1, Public Admn (CC)-1, Development of Punjabi Language-1, Computer Applications (Damdama Sahib)-1, English-1, Business Management (Guru Kashi Campus, Talwandi Sabo)-1.

Specializations :

Commerce : Accounting/Finance/Business Law

Chemistry : Organic/Physical/Inorganic.

Computer Sc. & Engg. : Computer networks/Microprocessor/Electronics/Physics with Electronics/Electrical Engg./Electronics Engg./Mechanical Engg./Computer based numerical Analysis/Computer based Statistical Methods/Software Engg./Object Oriented Programming/Computer hardware/Computer Vision/Artificial Intelligence/Operating System/DBMS.

Business Management : Finance and Control. (Candidates with degree in Master of Finance & Control are also eligible.)

2. **Programme Co-ordinator (NSS) :** 1

3700-5700 (UGC)

Qualifications :

- i) The candidate should be a Reader or Lecturer in the Selection Grade in the University or an affiliated College.

- ii) Must have been N.S.S., Programme Officer for at least two years.

- iii) Must have undergone an orientation in N.S.S. in a Training and Orientation Centre/Training, Orientation and Research Centre.

- iv) Should not be more than 50 years of age at the time of selection as Co-ordinator.

- v) The Principals of affiliated colleges having N.S.S. background and status of a Reader can also be considered for this post.

- vi) Appointment will be on deputation for a period of three years, extendable by one year.

3. **Demonstrator (Punjabi Koshakari Dept.) :** 1

7220-11,320

Qualifications : M.A.(French), LL.B. and basic knowledge of Punjabi.

4. **System Analyst/System Programmer (University Computer Centre) :** 1

2200-4000 (UGC)

Qualifications : B Tech (CSE) or B.Tech (Non-CSE) with experience in computing OR M.Sc. (Physical Sciences) with two years experience in computing OR M.Sc. (Physical Sciences), DCA with one year experience in computing or MCA.

5. **Technical Assistant (English Dept.) :** 1

7220-11,320

Qualifications : At least second class M.A.(English) with three years experience. OR M.A.(English) first class with consistently excellent academic record.

6. **Programme Assistant (Computer Sc.**

& Engineering) : 1

7220-11,320

Qualifications : B.Tech./B.E. (Computer Science & Engg./Electronics/Instrumentation/Electronics Communications). OR M.Sc. (1st class) with one year PG Diploma in Computer Science. OR M.Tech/M.E. (Computer Science & Engg./Electronics/Instrumentation/Electronics Communications) : OR M.C.A.

7. **Technician Grade-1 (Pharmaceutical Sciences & Drug Research Dept.) :** 1

5800-9200

Qualifications : B.Pharm/M.Sc. in Physiology/Microbiology/Bio-Chemistry. OR B.Sc. Medical Technology/B.Sc. with three years experience in handling equipment used in Pharmacology/Microbiology/Medicinal Chemistry Laboratory.

8. **Technician Grade-II (Dept. of Fine Arts) :** 1

5000-8100

Qualifications : B.A. with Diploma in Art and Craft from any recognised institution with three years experience.

Experience : 1) Required experience is to be in the line of speciality suiting job requirements. 2) Before interview, a practical test will be conducted to assess the Proficiency of the candidate for the required job.

9. **Technician Grade-II : (Pharmaceutical Sciences and Drug Research Dept.) :** 1

5000-8100

Qualifications : B.Pharm/M.Sc. in Physiology/Microbiology/Bio-chemistry or B.Sc. Medical Technology/B.Sc. with three years experience in handling equipment used in Pharmacology/Microbiology/Medicinal Chemistry Laboratory.

10. Assistant System Analyst (University Computer Centre) : 1

1600-2660 (Unrevised)

Qualifications : Essential : B.Sc.(Non-medical) with minimum second division and two years experience of Computer Programming. OR Master's degree in Mathematics/Statistics Operational Research/Economics/Physics. OR B.Tech. (Computer Science) and one year experience of Computer Programming. OR Master's degree in Computer Science and Applications.

Desirable : Working experience of LOTUS/DBASE/WORD PROCESSING and other PC PACKAGES.

11. Data Entry Operator : 2 (One each for Dept. of Computer Science & Engineering and University Computer Centre)

5000-8100

Qualifications : Graduate with knowledge of Data Entry and Word Processing.

12. Clerk (Computer Data Entry) Examination Branch : 1

3120-5160

Qualifications : 1. Degree in any speciality with atleast 50% marks OR Post-graduate degree in any subject OR Post-graduate Diploma in Computer Education.

2. Atleast 6 months training in Computer Application/Practical experience.

3. At least 40 W.P.M. speed in word processing & data entry in English language and 30 W.P.M. in Punjabi language. There will be a practical Test to assess the knowledge of the candidates.

13. Copy Holder (Punjabi Language Development Dept.) : 1

3120-5160

Qualifications : Atleast second class Matriculate with Punjabi as one of the subjects. Candidate with experience in a good Press or Newspaper will be given preference.

NOTE : The post is reserved for a candidate belonging to Scheduled Caste Category. If no candidate belonging to Scheduled Caste Category is found eligible, the post would be filled from amongst candidates belonging to general category.

14. Animal Room Attendant (Pharmaceutical Sciences & Drug Research Dept.) : 1

3120-5160

Qualifications : XII class or its equivalent examination with Science. OR Matric with Science with two years experience in a Science Laboratory.

15. Laboratory Attendants : 12 (Forensic Science-2, Pharmaceutical Sciences & Drug Research Dept.-5, Computer Centre-1, Computer Science & Engg. Dept-1, Senior Secondary Model School-1, Guru Kashi Campus Talwandi Sabo-1, Geography-1)

(One post each in Pharmaceutical Sc. & Drug Research Dept., Guru Kashi Campus Talwandi Sabo and Forensic Science is reserved for SC/ST candidates).

Qualifications : Same as at Sr. No. 14.

16. Attendant (Computer Centre) : 1

3120-5160

Qualifications : Same as at Sr. No. 14.

17. Store-Keeper (Pharmaceutical Sciences & Drug Research Dept.)-1

3120-5160

Qualifications : XII Class or any other examination equivalent to XII Class with Science or B.Sc./B.A.; OR Matric with Science with two years experience in a Pharmaceutical Sciences Dept

18. Cook : 2 (One each for Waris Bhavan and University Guest House)

3120-5160

Qualifications : 1. The candidate should have at least 5 years experience of

cooking in a big Hotel/Restaurant.

2. The candidate should be conversant with preparation of Indian continental as well as Chinese dishes.

3. The candidate should be able to read and write Punjabi.

19. Cook-cum-Bearer (Waris Bhavan) : 1

3120-5160

Qualifications : Same as at Sr. No. 18.

20. Masalchi (Waris Bhavan) : 1

2520-4140 with starting basic pay of Rs. 2620

Essentials : The candidate : (i) should not be less than 18 years (ii) will have to clean utensils etc. (iii) The duty will be of 24 hours (iv) need not be educated.

Note:

1. Candidates who had earlier applied for any of the posts mentioned above, in response to the previous advertisement, need not apply afresh.

2. Teaching posts carry UGC pay scales. Only specializations, where required, have been given in this advertisement. Detailed qualifications as prescribed by the UGC/University will be supplied alongwith the application form.

3. Candidates must have passed Punjabi in Matriculation Examination or passed Punjabi Prabodh or Punjabi Praveshika Examination. However, if suitable candidate with requisite qualifications in Punjabi are not available, the selected candidates shall have to pass any of these examinations within two years.

4. Incomplete applications and those received after the last date shall not be entertained.

5. The eligibility of every candidate will be determined on the basis of qualifications acquired by him upto the last date fixed for receipt of applications.

6. It is not obligatory to call every candidate who possesses the essential qualifications for interview.
7. The number of posts can be increased/decreased.
8. For any of the non-teaching posts minimum prescribed qualifications can be relaxed in the case of otherwise suitable candidate.

Application forms can be obtained from the Head, Publication Bureau, Punjabi University, Patiala-147 002, on payment of Rs. 75/- for teaching posts and Rs. 30/- for non-teaching posts, at the counter OR by sending a Demand Draft in favour of the Registrar, alongwith a self-addressed envelope (25 x 10 cms.) affixed with postage stamps worth Rs. 12/- and indicating on it the name of the post applied for.

REGISTRAR

**MANONMANIAM
SUNDARANAR UNIVERSITY
THIRUNELVELI**

No.:MSU/Estt./T/Advt./'99

Applications are invited from suitable candidates for the post of 'INFORMATION SCIENTIST'

Tenure of the Post : Maximum period of 5 years.

Scale of Pay : Rs. 7,000/- per month as consolidated pay.

Qualifications :

(a) B.E. (Computer) OR (b) Master Degree in Computer Application (MCA) OR (c) Master Degree in Library and Information Science (M.Lib. or M.Lib.I.Sc.) and Post-Graduate Diploma in Computer Applications (PGDCA) OR (d) Bachelor Degree in Library and Information Science (B.Lib. or B.Lib.I.Sc.) with Three years experience in the field and Post-graduate Diploma in Computer Applications (PGDCA).

All Degrees/Diploma shall be from recognised University/Institutions with

minimum 55% marks.

Prescribed application forms along with details can be obtained in person or by post from the office of the "REGISTRAR, MANONMANIAM SUNDARANAR UNIVERSITY, ABISHEKAPATTI, THIRUNELVELI-627 012" on requisition accompanied by a Demand Draft or Rs. 200/- drawn in favour of the "REGISTRAR, MANONMANIAM SUNDARANAR UNIVERSITY, ABISHEKAPATTI, THIRUNELVELI" on any one of the na-

tionalised banks payable at Thirunelveli in person or by post by sending a self-addressed envelop of 27x12 cm. size stamp to the value of Rs. 12/-. Money orders/ Postal orders/Cheques/Cash will not be accepted.

Last date for receipt of filled in applications :Friday, the 26th February, 1999.

Thirunelveli-12 Dr. S. Arumugam
Date: 29.01.1999 REGISTRAR IN-CHARGE

SAHA INSTITUTE OF NUCLEAR PHYSICS

Sector-I, Block-AF, Bidhannagar, Calcutta - 700 064

No. SINP/R/Advt./RF/1/99

JUNIOR RESEARCH FELLOWSHIP IN PHYSICS AND BIOPHYSICAL SCIENCES (1999-2000 SESSION)

Applications are invited for Junior Research Fellowship at the Saha Institute of Nuclear Physics. The Institute is engaged in research in many front-line areas of Physics and Biophysical Sciences such as :

(a) **Physics** : Accelerator-based Nuclear Physics, Theoretical Nuclear Physics, Astronuclear and Astroparticle Physics, High Energy Physics, Mathematical Physics, Solid State Physics, Low Temperature Physics, Surface Physics, Physics of Soft Condensed Matter, Plasma Physics and Magnetic Confinement, Atomic and Molecular Spectroscopy etc.

(b) **Biophysical Sciences** : Structural Biology and Biomolecular Spectroscopy, Macromolecular Crystallography, Cell Biology and Ultrastructural Research, Molecular Genetics, Membrane Biophysics, Genetic Toxicology, Radiation Chemistry and Biology etc.

Eligibility : (a) **Physics** : Master's degree in Physics OR in Applied Mathematics/Engineering Sciences/M. Tech. (with good background in Physics).

(b) **Biophysical Sciences** : (i) Master's degree in Physics OR in Biophysics/Molecular Biology / Biotechnology / Crystallography/Chemistry/Biochemistry (with Mathematics and Physics at the B.Sc. level).

Candidates currently appearing in their final examinations for the above degrees may also apply.

Admission Test : Admission will be on the basis of academic records and performance in the admission test consisting of a written examination and an interview which will be held in the month of May, 1999. The session is to commence in August, 1999.

Travel allowance : Candidates called for the admission test will be reimbursed return second class Railway fare from their normal place of residence and will be paid DA as per the rules of the Institute.

The First year of the Fellowship : Selected students have to successfully complete a one year course, the Post M.Sc. Associateship Course, prior to pursuing doctoral research at the Institute.

Fellowship and Hostel Accommodation : The fellowship is Rs. 5400/- p.m. Limited hostel accommodation will be available.

How to apply : Application forms will be available from the Establishment Officer, Saha Institute of Nuclear Physics, Sector-1, Block-AF, Bidhannagar, Calcutta-700 064. Email : pmisc@hpl.saha.ernet.in. To obtain application forms please send a self addressed envelope (25 cms. x 11 cms.) by 15th March, 1999. Do not affix any stamp on the envelope. Mention the stream (Physics/Biophysical Sciences) in which you want to apply. Completed application forms must reach the Establishment Officer, SINP by 31st March, 1999.

**DEBASHIS BASU
PROFESSOR-IN-CHARGE
REGISTRAR'S OFFICE**

FACULTY POSITIONS AT INDIAN INSTITUTE OF SCIENCE (IISc.)

Indian Institute of Science, Bangalore, is a premier Institute of higher learning and research in the country. It has more than 40 departments/centres/units and nearly 450 faculty members pursuing research in many areas of science and engineering. Specialized ME/MTech programs are also conducted.

The Institute welcomes applications from exceptionally bright and motivated persons with an established record of independent, high quality research and com-

mitment to teaching for positions of Assistant Professors in all disciplines of interest to the Institute in Science and Engineering. The prospective candidates must have a Ph.D. (in the relevant areas) with three years of post-doctoral research experience (relaxable in exceptional cases), and be preferably below 35 years of age. The salary will be in the grade of Rs. 3700-125-4950-150-5700 p.m. (scale is under upward revision) plus allowances. Interested candidates may apply giving their curriculum vitae, list of publications with reprints of important publications, proposed research plan, department at which the candidate proposes to

work, name and address (with email and fax number) of at least three referees, and any other details, to the Registrar, Indian Institute of Science, Bangalore-560 012, India. (Fax : 0091-080-3340757; Email: regr@admin.iisc.ernet.in Tel. : 0091-080-3340757 or 3092444). Applications are welcome throughout the year but will be considered for possible openings in January and August each year. General information about IISc. is available on the Website: <http://www.iisc.ernet.in>

R(1A)308-1/99

Dated 2nd February, 1999

REGISTRAR



M.J.P. ROHILKHAND UNIVERSITY, BAREILLY

VACANCIES

Applications for the following posts are invited on prescribed form available from the Registrar, MJP Rohilkhand University, Bareilly-243 006 by sending crossed Postal Order/Bank Draft for Rs. 100/- and Rs. 40/- for SC/ST payable to the Finance Officer, MJP Rohilkhand University, Bareilly alongwith self addressed envelope of 9"x9" size duly stamped with Rs. 15/-.

Last date for receipt of filled application form is 20.3.99. Applicants who are already in service may send an advance copy followed by a copy through employer/proper channel. The applicants who have applied in response to our earlier advertisements and whose Selection Committees could not meet, need not apply. However they may send additional information of their academic achievements, if any.

Institute of Engineering and Technology

	P	R	L
Electronics & Communication	2	3(S,O,U)	8(2S,3O,3U)
Comp. Sc. & Information Tech.	2	4(2S,O,U)	9(2S,3O,3U,ST)
Elect & Instrumentation	2	3(O,2U)	6(S,2O,3U)
Mechanical	1	2(O,U)	7(2S,2O,3U)
Electrical	1	3(S,O,U)	7(2S,2O,3U)
Chemical	1	3(O,2U)	5(2S,O,2U)
Mathematics	1	1(O)	3(S,O,U)
Chemistry	1	2(S,U)	3(S,O,U)
Physics	-	2(O,U)	1(S)
B.Pharm	1	4(2S,2U)	4(S,O,2U)
Communicative English	-	1(U)	2(O,U)
Plant Science	-	-	1(S)
Animal Science	-	-	1(U)

Institute of Advance Studies in Education

	P	R	L
Media/Electronic Journalism	1	2*(O,U)	3**(S,O,U)
Master of Social Work (MSW)	1	2(U,O)	3(S,O,U)
Applied & Clinical Psychology	1	2(S,U)	4(S,O,2U)
B.Ped.	1	2(S,U)	3(S,O,U)
Bachelor in Physiotherapy	1	4(S,O,2U)	5(S,2O,2U)
B.Ed./M.Ed. (Vocational)	-	1(S)	1(U)
M.A. (Applied English)	-	1(U)	4(S,O,2U)
Computer Application	-	1(U)	3(S,O,U)
B.Ed. (Spl. Education)	-	-	1(U)
Teacher (Education)	-	2(S,O)	3(S,U,O)

*Reader/Senior Producer

S=SC

**Lecturer/Junior Producer

O=OBC

U=Unreserved

● **Essential Qualification & Experience :** The Essential & desirable qualifications as per University Act & Status AICTE/UGC norms.

● **Note :** Separate application form should be submitted for each post.

● **Pay scale :** As per UGC/STATE GOVT. norms.

IMPORTANT

1. The OBC candidates are required to send their Non Creamy Layer Certificate as per Govt. Notification 22/16/12K-2/1995 TC dated 8 Dec. 1995 as amended, otherwise their applications will be considered in General Category.
2. Reservation as per U.P. Govt. rules and regulations and in view of decisions of the Hon'ble High Court/Supreme Court.
3. The number of posts may increase or decrease.

REGISTRAR



ADMISSION NOTICE

INDIRA GANDHI INSTITUTE OF DEVELOPMENT RESEARCH, MUMBAI

(Deemed University)

An Advanced Research Institute

Established by the Reserve Bank of India

M.Phil/Ph.D. Programme in Development Studies : 1999-2000

Indira Gandhi Institute of Development Research (IGIDR) invites applications for admission to its M.Phil./Ph.D. Programme in Development Studies covering economics, energy and environmental policy issues. The M.Phil. Programme is of two years duration and the Ph.D. programme can be completed in four years. The degrees are awarded on the basis of successful completion of coursework and dissertation. Only those candidates who pass a set of Comprehensive Examinations in the coursework stage will be eligible for Ph.D. registration. The session will commence in August 1999.

Eligibility : (i) M.A. in Economics with at least 55% marks, (ii) MBA/MMS with a Bachelor's Degree in Economics, Engineering, or Physical Sciences, (iii) M.Sc. in Physical Sciences, Environmental Science (with Mathematics in Bachelors degree), Mathematics, Operations Research, Statistics, (iv) M.Tech, B.Tech, B.E. or equivalent. In case of (ii), (iii) and (iv) the required minimum marks are 60%. Candidates who expect to complete their present study by July 15, 1999 may also apply.

Stipend : The students admitted to the Programme will receive a monthly stipend of Rs. 5500/- in the first two years, and after Ph.D. registration Rs. 7000/- in the third and fourth years. Students receiving stipend are required to provide Research Assistance. Limited multi-seated hostel accommodation is available on the campus.

Selection procedure : Candidates will be selected on the basis of their academic records and performances in a written test and interview. The written test emphasizing on quantitative skills will be held on April 25, 1999 in the following centres : Allahabad, Ahmedabad, Bangalore, Bhopal, Bhubaneshwar, Calcutta, Chandigarh, Chennai, Dibrugarh, Guwahati, Hyderabad, Jaipur, Lucknow, Mumbai, New Delhi, Patna, Raipur, Trivuvananthapuram. The address of the test venue will be provided with the call letter. Candidates found suitable will be interviewed in Mumbai from July 2 to 4, 1999. Second class return rail fare by the shortest route from the place of residence will be paid to the candidates interviewed. The decision of the Selection Committee is final.

How to apply : Application material can be obtained in person or by writing to the Admissions Office, IGIDR, Gen. A.K. Vaidya Marg, Goregaon (East), Mumbai 400 065 (E-mail : soffice@igidr.ac.in) on payment of Rs. 100/- (non-refundable) in cash or demand draft drawn in favour of Indira Gandhi Institute of Development Research payable at Mumbai. Payment in any other form will not be accepted. The request for the application form in plain paper, along with the candidate's name, date of birth, sex, address, academic qualifications, choice of test centre and the application fee, must reach IGIDR by March 15, 1999. The last date for receiving the completed application form is April 20, 1999.

Internet download : Candidates can also download the application material directly from www.igidr.ac.in and return the completed form along with the application fee by March 15, 1999.



GURUKUL KANGRI VISHWAVIDYALAYA, HARDWAR (Deemed University) Admission Notice for Session 1999-2000 (M.C.A./M.B.A. Programme)

Applications are invited for admission to :

1. Master of Computer Applications (M.C.A. 3 Year Master Degree Course)
2. Master of Business Administration (M.B.A. 2 Year Master Degree Course)

ELIGIBILITY :

FOR MCA : Graduate TDC with atleast 50% marks (45% for SC/ST/GKV Graduates) having Maths as one of the subjects at 10+2 level.

FOR MBA : Graduate TDC with atleast 50% marks (45% for SC/ST/GKV Graduates)

AGE LIMIT : Between 20 Years and 23 Years as on 30.9.99. Upper age for sponsored/NRI candidates, 28 years as on 30.9.99.

NO. OF SEATS :

FOR MCA : 20 for boys (+10 Sponsored/NRI) and 20 for girls (+10 Sponsored/NRI)

FOR MBA : 20 for boys (+10 Sponsored/NRI) and 20 for girls (+10 Sponsored/NRI)

HOW TO APPLY :

Application form and other details for examination for each course may be obtained from and shall have to be submitted to the corresponding addresses as specified below on cash payment of Rs. 100 (Rs. 250 for Sponsored) upto April 30, 1999 and by post upto April 20, 1999 by sending bank draft of Rs. 130 (Rs. 280 for Sponsored) payable to REGISTRAR GURUKUL KANGRI VISHWAVIDYALAYA, HARDWAR. Those appearing in final year of qualifying examination may also apply.

M.B.A.-BOYS : Principal, Ved and Arts College, Gurukul Kangri Vishwavidyalaya, Hardwar.

M.C.A.-BOYS : Principal, Science College, Gurukul Kangri Vishwavidyalaya, Hardwar.

M.C.A./M.B.A.-GIRLS : Principal, Kanya Gurukula Mahavidyalaya, 47, Sevak Ashram Road, Dehradun. (U.P.)

LAST DATE FOR SUBMITTING APPLICATION FORM : April 30, 1999

DATE OF ENTRANCE EXAM :

M.C.A. 06.06.99 8:30 TO 10:30 A.M.

M.B.A. 06.06.99 11:30 TO 1:30 P.M.

CENTRE FOR ENTRANCE EXAM :

- A. Vishwavidyalaya Bhawan, Gurukul Kangri Vishwavidyalaya, Hardwar (For Boys : MCA/MBA)
- B. Kanya Gurukula Mahavidyalaya, 47, Sevak Ashram Road, Dehradun. (For Girls : MCA/MBA)
- C. Delhi (Boys and Girls)

Note :

1. Availability of Application Forms : After 15.02.99 from 10:00 a.m. to 4:00 p.m.
2. In case of non-availability of adequate no. of candidates at Delhi centre, the centre of the candidate may be changed to Hardwar or Dehradun.

Dr. S.N. Singh
REGISTRAR